





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 296282 Report

This analysis was run 04/25/26 on database version 644.

Pham number 296282 has 177 members, 16 are drafts.

Phages represented in each track:

- Track 1 : Delian\_45, CaptainKirk2\_42, Archis\_45, Zarbodnamra\_41, MintFen\_42, Zilla\_40
- Track 2 : Melba\_41, Barco\_40
- Track 3 : Pipp\_38
- Track 4 : JasperJr\_40, Guacamole\_40
- Track 5 : Petra\_39
- Track 6 : Obliviate\_38
- Track 7 : PhrostedPhlake\_44
- Track 8 : BlingBling\_39
- Track 9 : Hitter\_43
- Track 10 : GMA5\_19
- Track 11 : Chipko\_45, Dmitri\_40
- Track 12 : Coriander\_40
- Track 13 : Doggs\_37
- Track 14 : Moonflower\_39
- Track 15 : Opie\_43
- Track 16 : Kiko\_41
- Track 17 : TaronosaurusRx\_42
- Track 18 : CoveyB\_51, Valary\_50, Mutzi\_48, Jambalaya\_48, Halo3\_49, VanDeWege\_51, Savbucketdawg\_48, Gezellig\_47
- Track 19 : Evamon\_47, Phlop\_47, Egi03\_48, KimmyK\_49, Togo\_47, Fugax\_51, Barb\_50, ClamChowder\_50, PullumCavea\_47, SmokingBunny\_48, Salvador\_47, PinkCoffee\_50, Nubi\_48
- Track 20 : Bakery\_54, Arri\_51
- Track 21 : Portcullis\_50, JohnPork\_51, Danyall\_50, Twister6\_50
- Track 22 : Wizard\_47
- Track 23 : Fireball\_50
- Track 24 : YungMoney\_51
- Track 25 : RogerDodger\_51
- Track 26 : Phishy\_37
- Track 27 : Ewald\_34
- Track 28 : Nyceirae\_36
- Track 29 : Santhid\_31
- Track 30 : DonkeyMan\_32, Tarzan\_32
- Track 31 : Heinz\_32, Hibiscus\_33
- Track 32 : Jojo24\_31
- Track 33 : DearBasketball\_34

- Track 34 : Guinevere\_43
- Track 35 : MillySue\_42
- Track 36 : IsHungry\_37
- Track 37 : QuinnAvery\_43
- Track 38 : GoodLuckBabe\_43, Zaheer\_43, Schism\_45, Cole\_40
- Track 39 : Gusanita\_40
- Track 40 : Elesar\_37
- Track 41 : Popper\_41
- Track 42 : Kihatsu\_43
- Track 43 : AllBusiness\_39
- Track 44 : BruceB\_33, Sweets\_33, Halo\_33, Annihilator\_33, BPs\_33, Hotshotbaby7\_33, ShaboiShabazz\_33, Jane\_33, Aroostook\_33, Hope\_33, Mowgli\_33, TomBrady\_33, Cherrybomb426\_33, Chance64\_33, Marmie\_33, JorRay\_33, Phreak\_33, Periodt\_33, Avrafan\_33, Jonghyun\_33, Olga\_33
- Track 45 : Barkley26\_33
- Track 46 : Angel\_33, Plagueis\_33
- Track 47 : Taheera\_33, Terror\_33
- Track 48 : Paito\_33
- Track 49 : Rabbs\_33
- Track 50 : Grizzly\_33, Kasen3\_33, Sizemore\_33
- Track 51 : LouisV14\_33
- Track 52 : Liefie\_33
- Track 53 : Babsiella\_34, Brujita\_34, Island3\_34
- Track 54 : PaintedDog\_40
- Track 55 : Fishburne\_31, Kari\_31, Bartholomew\_30, Venti\_31, Dynamo\_31, Langerak\_31, GaloreK\_31, Mangethe\_31, BronnyJr\_31, Phineas\_31, Majeke\_31, HUHilltop\_31, Necropolis\_31, Etoile\_31, Donovan\_31, Vidya\_31, Chubbello\_31, Techage\_31, Zilizebeth\_31
- Track 56 : Polkaroo\_31, Brusacoram\_31, Atcoo\_31, Bhagsy\_31, KilKor\_31, Willsammy\_30, Phalm\_31, PeanutPie\_31, Megiddo\_31, StressBall\_31, GreaseLightnin\_31, StevieRay\_31, Camster\_31, Bunnies\_31, Gavriela\_31, Juniormint\_31, Ksquared\_31, Sonah\_31, Jung\_30, CactusJack\_31, Glaske\_31
- Track 57 : FirstPlacePfu\_31, Jebeks\_32
- Track 58 : Malithi\_31
- Track 59 : Pygmy\_33, Arib1\_31, Shipwreck\_33, Bogie\_33
- Track 60 : Thespis\_31
- Track 61 : Phegasus\_31
- Track 62 : Nazo\_35, BigNuz\_34
- Track 63 : Phayonce\_33
- Track 64 : Purky\_38
- Track 65 : AuntGwenStacy\_54, Typha\_53, Hilltopfarm\_53
- Track 66 : Faiyaz\_54
- Track 67 : Cracklewink\_51, Bipper\_51
- Track 68 : Bobburn\_21
- Track 69 : Barebow\_19

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

The start number called the most often in the published annotations is 76, it was called in 63 of the 161 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Angel\_33, Annihilator\_33, Aroostook\_33, Arri\_51, Avrafan\_33, BPs\_33, Bakery\_54, Barb\_50, Barco\_40, Bipper\_51, BruceB\_33, Chance64\_33, Cherrybomb426\_33, ClamChowder\_50, CoveyB\_51, Cracklewink\_51, Danyall\_50, Egi03\_48, Evamon\_47, Faiyaz\_54, Fugax\_51, Gezellig\_47, Grizzly\_33, Halo3\_49, Halo\_33, Hope\_33, Hotshotbaby7\_33, Jambalaya\_48, Jane\_33, JohnPork\_51, Jonghyun\_33, JorRay\_33, Kasen3\_33, KimmyK\_49, LouisV14\_33, Marmie\_33, Melba\_41, Mowgli\_33, Mutzi\_48, Nubi\_48, Olga\_33, Paito\_33, Periodt\_33, Petra\_39, Phlop\_47, Phreak\_33, PinkCoffee\_50, Pipp\_38, Plagueis\_33, Portcullis\_50, PullumCavea\_47, Rabbs\_33, RogerDodger\_51, Salvador\_47, Savbucketdawg\_48, ShaboiShabazz\_33, Sizemore\_33, SmokingBunny\_48, Sweets\_33, Togo\_47, TomBrady\_33, Twister6\_50, Valary\_50, VanDeWege\_51,

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

- Archis\_45, AuntGwenStacy\_54, Barkley26\_33, BlingBling\_39, CaptainKirk2\_42, Delian\_45, Hilltopfarm\_53, Liefie\_33, MintFen\_42, Obliviate\_38, Taheera\_33, Terror\_33, Typha\_53, Wizard\_47, Zarbodnamra\_41, Zilla\_40,

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

- AllBusiness\_39, Arib1\_31, Atcoo\_31, Babsiella\_34, Barebow\_19, Bartholomew\_30, Bhagsy\_31, BigNuz\_34, Bobburn\_21, Bogie\_33, BronnyJr\_31, Brujita\_34, Brusacoram\_31, Bunnies\_31, CactusJack\_31, Camster\_31, Chipko\_45, Chubbello\_31, Cole\_40, Coriander\_40, DearBasketball\_34, Dmitri\_40, Doggs\_37, DonkeyMan\_32, Donovan\_31, Dynamo\_31, Elesar\_37, Etoile\_31, Ewald\_34, Fireball\_50, FirstPlacePfu\_31, Fishburne\_31, GMA5\_19, GaloreK\_31, Gavriela\_31, Glaske\_31, GoodLuckBabe\_43, GreaseLightnin\_31, Guacamole\_40, Guinevere\_43, Gusanita\_40, HUHilltop\_31, Heinz\_32, Hibiscus\_33, Hitter\_43, IsHungry\_37, Island3\_34, JasperJr\_40, Jebeks\_32, Jojo24\_31, Jung\_30, Juniormint\_31, Kari\_31, Kihatsu\_43, Kiko\_41, KilKor\_31, Ksquared\_31, Langerak\_31, Majeke\_31, Malithi\_31, Mangethe\_31, Megiddo\_31, MillySue\_42, Moonflower\_39, Nazo\_35, Necropolis\_31, Nyceirae\_36, Opie\_43, PaintedDog\_40, PeanutPie\_31, Phalm\_31, Phayonce\_33, Phegasus\_31, Phineas\_31, Phishy\_37, PhrostedPhlake\_44, Polkaroo\_31, Popper\_41, Purky\_38, Pygmy\_33, QuinnAvery\_43, Santhid\_31, Schism\_45, Shipwreck\_33, Sonah\_31, StevieRay\_31, StressBall\_31, TaronosaurusRx\_42, Tarzan\_32, Techage\_31, Thespis\_31, Venti\_31, Vidya\_31, Willsammy\_30, YungMoney\_51, Zaheer\_43, Zilizebeth\_31,

### Summary by start number:

Start 35:

- Found in 4 of 177 ( 2.3% ) of genes in pham
- Manual Annotations of this start: 2 of 161
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Elesar\_37 (FF), Kihatsu\_43 (FF),

Start 38:

- Found in 45 of 177 ( 25.4% ) of genes in pham
- Manual Annotations of this start: 2 of 161
- Called 4.4% of time when present
- Phage (with cluster) where this start called: Phegasus\_31 (P1), Thespis\_31 (P1),

Start 52:

- Found in 4 of 177 ( 2.3% ) of genes in pham
- Manual Annotations of this start: 1 of 161
- Called 25.0% of time when present
- Phage (with cluster) where this start called: PhrostedPhlake\_44 (CV),

Start 54:

- Found in 2 of 177 ( 1.1% ) of genes in pham
- Manual Annotations of this start: 2 of 161
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Heinz\_32 (DY), Hibiscus\_33 (DY),

Start 57:

- Found in 7 of 177 ( 4.0% ) of genes in pham
- Manual Annotations of this start: 6 of 161
- Called 85.7% of time when present
- Phage (with cluster) where this start called: DonkeyMan\_32 (DY), Fireball\_50 (DC1), Jojo24\_31 (DY), Santhid\_31 (DY), Tarzan\_32 (DY), YungMoney\_51 (DC1),

Start 58:

- Found in 14 of 177 ( 7.9% ) of genes in pham
- Manual Annotations of this start: 8 of 161
- Called 57.1% of time when present
- Phage (with cluster) where this start called: Archis\_45 (CV), BlingBling\_39 (CV), CaptainKirk2\_42 (CV), Delian\_45 (CV), MintFen\_42 (CV), Obliviate\_38 (CV), Zarbodnamra\_41 (CV), Zilla\_40 (CV),

Start 59:

- Found in 3 of 177 ( 1.7% ) of genes in pham
- Manual Annotations of this start: 3 of 161
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Guacamole\_40 (CV), Hitter\_43 (CV), JasperJr\_40 (CV),

Start 64:

- Found in 8 of 177 ( 4.5% ) of genes in pham
- Manual Annotations of this start: 1 of 161
- Called 12.5% of time when present
- Phage (with cluster) where this start called: Popper\_41 (FF),

Start 65:

- Found in 7 of 177 ( 4.0% ) of genes in pham
- Manual Annotations of this start: 1 of 161
- Called 14.3% of time when present
- Phage (with cluster) where this start called: Doggs\_37 (DB),

Start 66:

- Found in 4 of 177 ( 2.3% ) of genes in pham
- Manual Annotations of this start: 2 of 161
- Called 75.0% of time when present
- Phage (with cluster) where this start called: AuntGwenStacy\_54 (Y), Hilltopfarm\_53 (Y), Typha\_53 (Y),

Start 68:

- Found in 4 of 177 ( 2.3% ) of genes in pham
- Manual Annotations of this start: 2 of 161
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Ewald\_34 (DT), Phishy\_37 (DT),

#### Start 69:

- Found in 16 of 177 ( 9.0% ) of genes in pham
- Manual Annotations of this start: 6 of 161
- Called 37.5% of time when present
- Phage (with cluster) where this start called: AllBusiness\_39 (FF), Gusanita\_40 (FF), IsHungry\_37 (FF), QuinnAvery\_43 (FF), Taheera\_33 (G1), Terror\_33 (G1),

#### Start 70:

- Found in 1 of 177 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 1 of 161
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Kiko\_41 (DB),

#### Start 71:

- Found in 3 of 177 ( 1.7% ) of genes in pham
- Manual Annotations of this start: 1 of 161
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Barebow\_19 (singleton),

#### Start 73:

- Found in 8 of 177 ( 4.5% ) of genes in pham
- Manual Annotations of this start: 2 of 161
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Opie\_43 (DB), TaronosaurusRx\_42 (DB),

#### Start 74:

- Found in 55 of 177 ( 31.1% ) of genes in pham
- Manual Annotations of this start: 45 of 161
- Called 94.5% of time when present
- Phage (with cluster) where this start called: Arib1\_31 (P1), Atcoo\_31 (P1), Bartholomew\_30 (P1), Bhagsy\_31 (P1), BigNuz\_34 (P4), Bobburn\_21 (singleton), Bogie\_33 (P1), BronnyJr\_31 (P1), Brusacoram\_31 (P1), Bunnies\_31 (P1), CactusJack\_31 (P1), Camster\_31 (P1), Chubbello\_31 (P1), Donovan\_31 (P1), Dynamo\_31 (P1), Etoile\_31 (P1), FirstPlacePfu\_31 (P1), Fishburne\_31 (P1), GaloreK\_31 (P1), Gavriela\_31 (P1), Glaske\_31 (P1), GreaseLightnin\_31 (P1), HUHilltop\_31 (P1), Jebeks\_32 (P1), Jung\_30 (P1), Juniormint\_31 (P1), Kari\_31 (P1), KilKor\_31 (P1), Ksquared\_31 (P1), Langerak\_31 (P1), Majeke\_31 (P1), Malithi\_31 (P1), Mangethe\_31 (P1), Megiddo\_31 (P1), Nazo\_35 (P4), Necropolis\_31 (P1), PeanutPie\_31 (P1), Phalm\_31 (P1), Phayonce\_33 (P5), Phineas\_31 (P1), Polkaroo\_31 (P1), Purky\_38 (P6), Pygmy\_33 (P1), Shipwreck\_33 (P1), Sonah\_31 (P1), StevieRay\_31 (P1), StressBall\_31 (P1), Techage\_31 (P1), Venti\_31 (P1), Vidya\_31 (P1), Willsammy\_30 (P1), Zilizebeth\_31 (P1),

#### Start 76:

- Found in 80 of 177 ( 45.2% ) of genes in pham
- Manual Annotations of this start: 63 of 161
- Called 80.0% of time when present

- Phage (with cluster) where this start called: Angel\_33 (G1), Annihilator\_33 (G1), Aroostook\_33 (G1), Arri\_51 (DC1), Avrafan\_33 (G1), BPs\_33 (G1), Bakery\_54 (DC1), Barb\_50 (DC1), Barco\_40 (CV), Bipper\_51 (Y), BruceB\_33 (G1), Chance64\_33 (G1), Cherrybomb426\_33 (G1), ClamChowder\_50 (DC1), CoveyB\_51 (DC1), Cracklewink\_51 (Y), Danyall\_50 (DC1), Egi03\_48 (DC1), Evamon\_47 (DC1), Faiyaz\_54 (Y), Fugax\_51 (DC1), Gezellig\_47 (DC1), Grizzly\_33 (G1), Halo3\_49 (DC1), Halo\_33 (G1), Hope\_33 (G1), Hotshotbaby7\_33 (G1), Jambalaya\_48 (DC1), Jane\_33 (G1), JohnPork\_51 (DC), Jonghyun\_33 (G1), JorRay\_33 (G1), Kasen3\_33 (G1), KimmyK\_49 (DC1), LouisV14\_33 (G1), Marmie\_33 (G1), Melba\_41 (CV), Mowgli\_33 (G1), Mutzi\_48 (DC1), Nubi\_48 (DC1), Olga\_33 (G1), Paito\_33 (G1), Periodt\_33 (G1), Petra\_39 (CV), Phlop\_47 (DC1), Phreak\_33 (G1), PinkCoffee\_50 (DC1), Pipp\_38 (CV), Plagueis\_33 (G1), Portcullis\_50 (DC1), PullumCavea\_47 (DC1), Rabbs\_33 (G1), RogerDodger\_51 (DC1), Salvador\_47 (DC1), Savbucketdawg\_48 (DC1), ShaboiShabazz\_33 (G1), Sizemore\_33 (G1), SmokingBunny\_48 (DC1), Sweets\_33 (G1), Togo\_47 (DC1), TomBrady\_33 (G1), Twister6\_50 (DC1), Valary\_50 (DC1), VanDeWege\_51 (DC1),

#### Start 77:

- Found in 7 of 177 ( 4.0% ) of genes in pham
- Manual Annotations of this start: 3 of 161
- Called 57.1% of time when present
- Phage (with cluster) where this start called: Babsiella\_34 (I1), Brujita\_34 (I1), Island3\_34 (I1), PaintedDog\_40 (I1),

#### Start 79:

- Found in 2 of 177 ( 1.1% ) of genes in pham
- No Manual Annotations of this start.
- Called 50.0% of time when present
- Phage (with cluster) where this start called: DearBasketball\_34 (DY),

#### Start 83:

- Found in 33 of 177 ( 18.6% ) of genes in pham
- Manual Annotations of this start: 2 of 161
- Called 6.1% of time when present
- Phage (with cluster) where this start called: Barkley26\_33 (G1), Liefie\_33 (G1),

#### Start 89:

- Found in 1 of 177 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 1 of 161
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Nyceirae\_36 (DT),

#### Start 93:

- Found in 45 of 177 ( 25.4% ) of genes in pham
- Manual Annotations of this start: 3 of 161
- Called 11.1% of time when present
- Phage (with cluster) where this start called: Chipko\_45 (DB), Coriander\_40 (DB), Dmitri\_40 (DB), Moonflower\_39 (DB), Wizard\_47 (DC1),

#### Start 96:

- Found in 55 of 177 ( 31.1% ) of genes in pham
- No Manual Annotations of this start.
- Called 1.8% of time when present

- Phage (with cluster) where this start called: GMA5\_19 (CW2),

Start 105:

- Found in 56 of 177 ( 31.6% ) of genes in pham
- Manual Annotations of this start: 1 of 161
- Called 3.6% of time when present
- Phage (with cluster) where this start called: Guinevere\_43 (FF), MillySue\_42 (FF),

Start 115:

- Found in 61 of 177 ( 34.5% ) of genes in pham
- Manual Annotations of this start: 3 of 161
- Called 6.6% of time when present
- Phage (with cluster) where this start called: Cole\_40 (FF), GoodLuckBabe\_43 (FF), Schism\_45 (FF), Zaheer\_43 (FF),

### **Summary by clusters:**

There are 16 clusters represented in this pham: singleton, P1, P6, P4, G1, P5, I1, CW2, DB, DC, FF, DY, Y, DT, CV, DC1,

Info for manual annotations of cluster CV:

- Start number 52 was manually annotated 1 time for cluster CV.
- Start number 58 was manually annotated 8 times for cluster CV.
- Start number 59 was manually annotated 3 times for cluster CV.
- Start number 76 was manually annotated 4 times for cluster CV.

Info for manual annotations of cluster DB:

- Start number 65 was manually annotated 1 time for cluster DB.
- Start number 70 was manually annotated 1 time for cluster DB.
- Start number 73 was manually annotated 2 times for cluster DB.
- Start number 93 was manually annotated 2 times for cluster DB.

Info for manual annotations of cluster DC1:

- Start number 57 was manually annotated 2 times for cluster DC1.
- Start number 76 was manually annotated 27 times for cluster DC1.
- Start number 93 was manually annotated 1 time for cluster DC1.

Info for manual annotations of cluster DT:

- Start number 68 was manually annotated 2 times for cluster DT.
- Start number 89 was manually annotated 1 time for cluster DT.

Info for manual annotations of cluster DY:

- Start number 54 was manually annotated 2 times for cluster DY.
- Start number 57 was manually annotated 4 times for cluster DY.

Info for manual annotations of cluster FF:

- Start number 35 was manually annotated 2 times for cluster FF.
- Start number 64 was manually annotated 1 time for cluster FF.
- Start number 69 was manually annotated 4 times for cluster FF.
- Start number 105 was manually annotated 1 time for cluster FF.
- Start number 115 was manually annotated 3 times for cluster FF.

Info for manual annotations of cluster G1:

- Start number 69 was manually annotated 2 times for cluster G1.
- Start number 76 was manually annotated 29 times for cluster G1.
- Start number 83 was manually annotated 2 times for cluster G1.

Info for manual annotations of cluster I1:

- Start number 77 was manually annotated 3 times for cluster I1.

Info for manual annotations of cluster P1:

- Start number 38 was manually annotated 2 times for cluster P1.
- Start number 74 was manually annotated 41 times for cluster P1.

Info for manual annotations of cluster P4:

- Start number 74 was manually annotated 2 times for cluster P4.

Info for manual annotations of cluster P5:

- Start number 74 was manually annotated 1 time for cluster P5.

Info for manual annotations of cluster P6:

- Start number 74 was manually annotated 1 time for cluster P6.

Info for manual annotations of cluster Y:

- Start number 66 was manually annotated 2 times for cluster Y.
- Start number 76 was manually annotated 3 times for cluster Y.

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

Gene: AllBusiness\_39 Start: 31045, Stop: 30608, Start Num: 69

Candidate Starts for AllBusiness\_39:

(22, 31183), (Start: 35 @31135 has 2 MA's), (41, 31111), (46, 31099), (Start: 64 @31057 has 1 MA's), (Start: 69 @31045 has 6 MA's), (101, 30976), (106, 30961), (122, 30892), (145, 30811), (153, 30718), (177, 30625),

Gene: Angel\_33 Start: 29324, Stop: 28914, Start Num: 76

Candidate Starts for Angel\_33:

(19, 29489), (25, 29453), (27, 29447), (Start: 76 @29324 has 63 MA's), (Start: 83 @29306 has 2 MA's), (107, 29243), (114, 29216), (152, 29048), (162, 28985), (166, 28979),

Gene: Annihilator\_33 Start: 29315, Stop: 28905, Start Num: 76

Candidate Starts for Annihilator\_33:

(19, 29480), (25, 29444), (27, 29438), (43, 29390), (Start: 76 @29315 has 63 MA's), (Start: 83 @29297 has 2 MA's), (107, 29234), (114, 29207), (118, 29186), (152, 29039), (162, 28976), (166, 28970),

Gene: Archis\_45 Start: 33058, Stop: 32636, Start Num: 58

Candidate Starts for Archis\_45:

(Start: 58 @33058 has 8 MA's), (72, 33028), (Start: 76 @33022 has 63 MA's), (95, 32974), (141, 32821), (164, 32689),

Gene: Arib1\_31 Start: 27353, Stop: 26952, Start Num: 74

Candidate Starts for Arib1\_31:

(Start: 74 @27353 has 45 MA's), (85, 27326), (96, 27296), (Start: 105 @27278 has 1 MA's), (111, 27254), (Start: 115 @27236 has 3 MA's), (121, 27209), (129, 27176), (140, 27146), (169, 26996),

Gene: Aroostook\_33 Start: 29324, Stop: 28914, Start Num: 76

Candidate Starts for Aroostook\_33:

(19, 29489), (25, 29453), (27, 29447), (43, 29399), (Start: 76 @29324 has 63 MA's), (Start: 83 @29306 has 2 MA's), (107, 29243), (114, 29216), (118, 29195), (152, 29048), (162, 28985), (166, 28979),

Gene: Arri\_51 Start: 39948, Stop: 39535, Start Num: 76

Candidate Starts for Arri\_51:

(33, 40053), (36, 40047), (44, 40023), (60, 39984), (Start: 76 @39948 has 63 MA's), (Start: 93 @39906 has 3 MA's), (114, 39840), (118, 39819), (134, 39759), (142, 39741),

Gene: Atcoo\_31 Start: 27834, Stop: 27433, Start Num: 74

Candidate Starts for Atcoo\_31:

(28, 27945), (Start: 38 @27915 has 2 MA's), (Start: 74 @27834 has 45 MA's), (85, 27807), (96, 27777), (Start: 105 @27759 has 1 MA's), (107, 27750), (111, 27735), (Start: 115 @27717 has 3 MA's), (121, 27690), (129, 27657), (140, 27627), (169, 27477),

Gene: AuntGwenStacy\_54 Start: 41198, Stop: 40797, Start Num: 66

Candidate Starts for AuntGwenStacy\_54:

(Start: 66 @41198 has 2 MA's), (Start: 76 @41177 has 63 MA's), (96, 41123), (114, 41069), (124, 41027), (134, 40988), (140, 40976), (152, 40901), (158, 40847), (161, 40841),

Gene: Avrafan\_33 Start: 29324, Stop: 28914, Start Num: 76

Candidate Starts for Avrafan\_33:

(19, 29489), (25, 29453), (27, 29447), (43, 29399), (Start: 76 @29324 has 63 MA's), (Start: 83 @29306 has 2 MA's), (107, 29243), (114, 29216), (118, 29195), (152, 29048), (162, 28985), (166, 28979),

Gene: BPs\_33 Start: 29324, Stop: 28914, Start Num: 76

Candidate Starts for BPs\_33:

(19, 29489), (25, 29453), (27, 29447), (43, 29399), (Start: 76 @29324 has 63 MA's), (Start: 83 @29306 has 2 MA's), (107, 29243), (114, 29216), (118, 29195), (152, 29048), (162, 28985), (166, 28979),

Gene: Babsiella\_34 Start: 28570, Stop: 28175, Start Num: 77

Candidate Starts for Babsiella\_34:

(Start: 52 @28627 has 1 MA's), (61, 28606), (Start: 64 @28597 has 1 MA's), (67, 28588), (Start: 77 @28570 has 3 MA's), (102, 28510), (106, 28498), (113, 28471), (123, 28429), (137, 28384), (144, 28357), (147, 28348), (169, 28228),

Gene: Bakery\_54 Start: 41089, Stop: 40676, Start Num: 76

Candidate Starts for Bakery\_54:

(33, 41194), (36, 41188), (44, 41164), (60, 41125), (Start: 76 @41089 has 63 MA's), (Start: 93 @41047 has 3 MA's), (114, 40981), (118, 40960), (134, 40900), (142, 40882),

Gene: Barb\_50 Start: 40067, Stop: 39654, Start Num: 76

Candidate Starts for Barb\_50:

(33, 40172), (36, 40166), (44, 40142), (60, 40103), (Start: 76 @40067 has 63 MA's), (Start: 93 @40025 has 3 MA's), (114, 39959), (118, 39938), (129, 39896), (142, 39860), (156, 39752),

Gene: Barco\_40 Start: 32072, Stop: 31686, Start Num: 76

Candidate Starts for Barco\_40:

(Start: 58 @32108 has 8 MA's), (72, 32078), (Start: 76 @32072 has 63 MA's), (95, 32024), (141, 31871), (164, 31739),

Gene: Barebow\_19 Start: 15697, Stop: 15296, Start Num: 71

Candidate Starts for Barebow\_19:

(Start: 71 @15697 has 1 MA's), (75, 15691), (86, 15664), (92, 15649), (132, 15514), (140, 15490), (152, 15403), (169, 15319),

Gene: Barkley26\_33 Start: 29328, Stop: 28936, Start Num: 83

Candidate Starts for Barkley26\_33:

(19, 29511), (25, 29475), (27, 29469), (Start: 76 @29346 has 63 MA's), (Start: 83 @29328 has 2 MA's), (107, 29265), (114, 29238), (129, 29175), (152, 29070), (162, 29007), (166, 29001), (172, 28977),

Gene: Bartholomew\_30 Start: 27347, Stop: 26946, Start Num: 74

Candidate Starts for Bartholomew\_30:

(28, 27458), (Start: 38 @27428 has 2 MA's), (45, 27404), (Start: 74 @27347 has 45 MA's), (85, 27320), (96, 27290), (Start: 105 @27272 has 1 MA's), (111, 27248), (Start: 115 @27230 has 3 MA's), (121, 27203), (129, 27170), (140, 27140), (169, 26990),

Gene: Bhagsy\_31 Start: 27343, Stop: 26942, Start Num: 74

Candidate Starts for Bhagsy\_31:

(28, 27454), (Start: 38 @27424 has 2 MA's), (Start: 74 @27343 has 45 MA's), (85, 27316), (96, 27286), (Start: 105 @27268 has 1 MA's), (107, 27259), (111, 27244), (Start: 115 @27226 has 3 MA's), (121, 27199), (129, 27166), (140, 27136), (169, 26986),

Gene: BigNuz\_34 Start: 29474, Stop: 29073, Start Num: 74

Candidate Starts for BigNuz\_34:

(21, 29621), (32, 29579), (44, 29540), (Start: 58 @29504 has 8 MA's), (Start: 74 @29474 has 45 MA's), (109, 29384), (111, 29375), (121, 29330), (129, 29297), (140, 29267), (169, 29117),

Gene: Bipper\_51 Start: 39965, Stop: 39576, Start Num: 76

Candidate Starts for Bipper\_51:

(Start: 76 @39965 has 63 MA's), (114, 39857), (Start: 115 @39851 has 3 MA's), (117, 39839), (118, 39836), (124, 39815), (128, 39797), (134, 39776), (140, 39764), (151, 39701), (154, 39662), (161, 39641), (162, 39638),

Gene: BlingBling\_39 Start: 33071, Stop: 32649, Start Num: 58

Candidate Starts for BlingBling\_39:

(39, 33113), (49, 33092), (Start: 58 @33071 has 8 MA's), (72, 33041), (Start: 76 @33035 has 63 MA's), (95, 32987), (141, 32834), (164, 32702),

Gene: Bobburn\_21 Start: 15474, Stop: 15130, Start Num: 74

Candidate Starts for Bobburn\_21:

(Start: 74 @15474 has 45 MA's), (Start: 77 @15468 has 3 MA's), (107, 15393), (109, 15387), (Start: 115 @15360 has 3 MA's), (146, 15246), (154, 15174),

Gene: Bogie\_33 Start: 29130, Stop: 28729, Start Num: 74

Candidate Starts for Bogie\_33:

(Start: 74 @29130 has 45 MA's), (85, 29103), (96, 29073), (Start: 105 @29055 has 1 MA's), (111, 29031), (Start: 115 @29013 has 3 MA's), (121, 28986), (129, 28953), (140, 28923), (169, 28773),

Gene: BronnyJr\_31 Start: 27844, Stop: 27443, Start Num: 74

Candidate Starts for BronnyJr\_31:

(28, 27955), (Start: 38 @27925 has 2 MA's), (45, 27901), (Start: 74 @27844 has 45 MA's), (85, 27817), (96, 27787), (Start: 105 @27769 has 1 MA's), (111, 27745), (Start: 115 @27727 has 3 MA's), (121, 27700), (129, 27667), (140, 27637), (169, 27487),

Gene: BruceB\_33 Start: 29324, Stop: 28914, Start Num: 76

Candidate Starts for BruceB\_33:

(19, 29489), (25, 29453), (27, 29447), (43, 29399), (Start: 76 @29324 has 63 MA's), (Start: 83 @29306 has 2 MA's), (107, 29243), (114, 29216), (118, 29195), (152, 29048), (162, 28985), (166, 28979),

Gene: Brujita\_34 Start: 29468, Stop: 29082, Start Num: 77

Candidate Starts for Brujita\_34:

(Start: 52 @29525 has 1 MA's), (61, 29504), (Start: 64 @29495 has 1 MA's), (67, 29486), (Start: 77 @29468 has 3 MA's), (102, 29408), (106, 29396), (113, 29369), (123, 29327), (137, 29282), (144, 29255), (147, 29246), (169, 29126),

Gene: Brusacoram\_31 Start: 27340, Stop: 26939, Start Num: 74

Candidate Starts for Brusacoram\_31:

(28, 27451), (Start: 38 @27421 has 2 MA's), (Start: 74 @27340 has 45 MA's), (85, 27313), (96, 27283), (Start: 105 @27265 has 1 MA's), (107, 27256), (111, 27241), (Start: 115 @27223 has 3 MA's), (121, 27196), (129, 27163), (140, 27133), (169, 26983),

Gene: Bunnies\_31 Start: 27361, Stop: 26960, Start Num: 74

Candidate Starts for Bunnies\_31:

(28, 27472), (Start: 38 @27442 has 2 MA's), (Start: 74 @27361 has 45 MA's), (85, 27334), (96, 27304), (Start: 105 @27286 has 1 MA's), (107, 27277), (111, 27262), (Start: 115 @27244 has 3 MA's), (121, 27217), (129, 27184), (140, 27154), (169, 27004),

Gene: CactusJack\_31 Start: 27604, Stop: 27203, Start Num: 74

Candidate Starts for CactusJack\_31:

(28, 27715), (Start: 38 @27685 has 2 MA's), (Start: 74 @27604 has 45 MA's), (85, 27577), (96, 27547), (Start: 105 @27529 has 1 MA's), (107, 27520), (111, 27505), (Start: 115 @27487 has 3 MA's), (121, 27460), (129, 27427), (140, 27397), (169, 27247),

Gene: Camster\_31 Start: 27377, Stop: 26976, Start Num: 74

Candidate Starts for Camster\_31:

(28, 27488), (Start: 38 @27458 has 2 MA's), (Start: 74 @27377 has 45 MA's), (85, 27350), (96, 27320), (Start: 105 @27302 has 1 MA's), (107, 27293), (111, 27278), (Start: 115 @27260 has 3 MA's), (121, 27233), (129, 27200), (140, 27170), (169, 27020),

Gene: CaptainKirk2\_42 Start: 32356, Stop: 31934, Start Num: 58

Candidate Starts for CaptainKirk2\_42:

(Start: 58 @32356 has 8 MA's), (72, 32326), (Start: 76 @32320 has 63 MA's), (95, 32272), (141, 32119), (164, 31987),

Gene: Chance64\_33 Start: 29324, Stop: 28914, Start Num: 76

Candidate Starts for Chance64\_33:

(19, 29489), (25, 29453), (27, 29447), (43, 29399), (Start: 76 @29324 has 63 MA's), (Start: 83 @29306 has 2 MA's), (107, 29243), (114, 29216), (118, 29195), (152, 29048), (162, 28985), (166, 28979),

Gene: Cherrybomb426\_33 Start: 29324, Stop: 28914, Start Num: 76

Candidate Starts for Cherrybomb426\_33:

(19, 29489), (25, 29453), (27, 29447), (43, 29399), (Start: 76 @29324 has 63 MA's), (Start: 83 @29306 has 2 MA's), (107, 29243), (114, 29216), (118, 29195), (152, 29048), (162, 28985), (166, 28979),

Gene: Chipko\_45 Start: 34209, Stop: 33889, Start Num: 93

Candidate Starts for Chipko\_45:

(Start: 65 @34269 has 1 MA's), (Start: 73 @34251 has 2 MA's), (Start: 93 @34209 has 3 MA's), (140, 34050), (142, 34044), (160, 33912), (165, 33903),

Gene: Chubbello\_31 Start: 27346, Stop: 26945, Start Num: 74

Candidate Starts for Chubbello\_31:

(28, 27457), (Start: 38 @27427 has 2 MA's), (45, 27403), (Start: 74 @27346 has 45 MA's), (85, 27319), (96, 27289), (Start: 105 @27271 has 1 MA's), (111, 27247), (Start: 115 @27229 has 3 MA's), (121, 27202), (129, 27169), (140, 27139), (169, 26989),

Gene: ClamChowder\_50 Start: 40067, Stop: 39654, Start Num: 76

Candidate Starts for ClamChowder\_50:

(33, 40172), (36, 40166), (44, 40142), (60, 40103), (Start: 76 @40067 has 63 MA's), (Start: 93 @40025 has 3 MA's), (114, 39959), (118, 39938), (129, 39896), (142, 39860), (156, 39752),

Gene: Cole\_40 Start: 29705, Stop: 29412, Start Num: 115

Candidate Starts for Cole\_40:

(30, 29933), (53, 29867), (Start: 69 @29831 has 6 MA's), (Start: 93 @29777 has 3 MA's), (Start: 105 @29747 has 1 MA's), (Start: 115 @29705 has 3 MA's), (138, 29624), (149, 29585), (153, 29516),

Gene: Coriander\_40 Start: 31779, Stop: 31459, Start Num: 93

Candidate Starts for Coriander\_40:

(Start: 65 @31839 has 1 MA's), (Start: 73 @31821 has 2 MA's), (Start: 93 @31779 has 3 MA's), (119, 31692), (130, 31647), (159, 31485), (160, 31482),

Gene: CoveyB\_51 Start: 39766, Stop: 39353, Start Num: 76

Candidate Starts for CoveyB\_51:

(60, 39802), (Start: 76 @39766 has 63 MA's), (Start: 93 @39724 has 3 MA's), (114, 39658), (118, 39637), (129, 39595), (142, 39559), (156, 39451),

Gene: Cracklewink\_51 Start: 39958, Stop: 39569, Start Num: 76

Candidate Starts for Cracklewink\_51:

(Start: 76 @39958 has 63 MA's), (114, 39850), (Start: 115 @39844 has 3 MA's), (117, 39832), (118, 39829), (124, 39808), (128, 39790), (134, 39769), (140, 39757), (151, 39694), (154, 39655), (161, 39634), (162, 39631),

Gene: Danyall\_50 Start: 39768, Stop: 39355, Start Num: 76

Candidate Starts for Danyall\_50:

(33, 39873), (36, 39867), (44, 39843), (60, 39804), (Start: 76 @39768 has 63 MA's), (Start: 93 @39726 has 3 MA's), (114, 39660), (118, 39639), (129, 39597), (142, 39561),

Gene: DearBasketball\_34 Start: 26807, Stop: 26418, Start Num: 79

Candidate Starts for DearBasketball\_34:

(34, 26915), (40, 26891), (Start: 57 @26855 has 6 MA's), (79, 26807), (100, 26756), (113, 26711), (134, 26627), (170, 26450),

Gene: Delian\_45 Start: 32354, Stop: 31932, Start Num: 58

Candidate Starts for Delian\_45:

(Start: 58 @32354 has 8 MA's), (72, 32324), (Start: 76 @32318 has 63 MA's), (95, 32270), (141, 32117), (164, 31985),

Gene: Dmitri\_40 Start: 33369, Stop: 33049, Start Num: 93

Candidate Starts for Dmitri\_40:

(Start: 65 @33429 has 1 MA's), (Start: 73 @33411 has 2 MA's), (Start: 93 @33369 has 3 MA's), (140, 33210), (142, 33204), (160, 33072), (165, 33063),

Gene: Doggs\_37 Start: 32568, Stop: 32188, Start Num: 65

Candidate Starts for Doggs\_37:

(Start: 65 @32568 has 1 MA's), (Start: 73 @32550 has 2 MA's), (Start: 93 @32508 has 3 MA's), (119, 32421), (130, 32376), (160, 32211), (165, 32202),

Gene: DonkeyMan\_32 Start: 27574, Stop: 27185, Start Num: 57

Candidate Starts for DonkeyMan\_32:

(18, 27706), (20, 27691), (24, 27670), (29, 27649), (30, 27646), (Start: 57 @27574 has 6 MA's), (84, 27517), (94, 27496), (97, 27484), (108, 27451), (120, 27391), (134, 27340),

Gene: Donovan\_31 Start: 27369, Stop: 26968, Start Num: 74

Candidate Starts for Donovan\_31:

(28, 27480), (Start: 38 @27450 has 2 MA's), (45, 27426), (Start: 74 @27369 has 45 MA's), (85, 27342), (96, 27312), (Start: 105 @27294 has 1 MA's), (111, 27270), (Start: 115 @27252 has 3 MA's), (121, 27225), (129, 27192), (140, 27162), (169, 27012),

Gene: Dynamo\_31 Start: 27758, Stop: 27357, Start Num: 74

Candidate Starts for Dynamo\_31:

(28, 27869), (Start: 38 @27839 has 2 MA's), (45, 27815), (Start: 74 @27758 has 45 MA's), (85, 27731), (96, 27701), (Start: 105 @27683 has 1 MA's), (111, 27659), (Start: 115 @27641 has 3 MA's), (121, 27614), (129, 27581), (140, 27551), (169, 27401),

Gene: Egi03\_48 Start: 39548, Stop: 39135, Start Num: 76

Candidate Starts for Egi03\_48:

(33, 39653), (36, 39647), (44, 39623), (60, 39584), (Start: 76 @39548 has 63 MA's), (Start: 93 @39506 has 3 MA's), (114, 39440), (118, 39419), (129, 39377), (142, 39341), (156, 39233),

Gene: Elesar\_37 Start: 30914, Stop: 30393, Start Num: 35

Candidate Starts for Elesar\_37:

(Start: 35 @30914 has 2 MA's), (41, 30890), (46, 30878), (Start: 64 @30836 has 1 MA's), (Start: 69 @30824 has 6 MA's), (101, 30755), (106, 30740), (132, 30638), (145, 30590), (153, 30497),

Gene: Etoile\_31 Start: 27347, Stop: 26946, Start Num: 74

Candidate Starts for Etoile\_31:

(28, 27458), (Start: 38 @27428 has 2 MA's), (45, 27404), (Start: 74 @27347 has 45 MA's), (85, 27320), (96, 27290), (Start: 105 @27272 has 1 MA's), (111, 27248), (Start: 115 @27230 has 3 MA's), (121, 27203), (129, 27170), (140, 27140), (169, 26990),

Gene: Evamon\_47 Start: 39787, Stop: 39374, Start Num: 76

Candidate Starts for Evamon\_47:

(33, 39892), (36, 39886), (44, 39862), (60, 39823), (Start: 76 @39787 has 63 MA's), (Start: 93 @39745 has 3 MA's), (114, 39679), (118, 39658), (129, 39616), (142, 39580), (156, 39472),

Gene: Ewald\_34 Start: 29912, Stop: 29541, Start Num: 68

Candidate Starts for Ewald\_34:

(37, 29993), (42, 29975), (50, 29957), (56, 29939), (Start: 68 @29912 has 2 MA's), (Start: 71 @29909 has 1 MA's), (75, 29903), (80, 29891), (86, 29876), (90, 29867), (101, 29843), (112, 29804), (118, 29774), (136, 29708),

Gene: Faiyaz\_54 Start: 41165, Stop: 40785, Start Num: 76

Candidate Starts for Faiyaz\_54:

(Start: 66 @41186 has 2 MA's), (Start: 76 @41165 has 63 MA's), (96, 41111), (114, 41057), (124, 41015), (134, 40976), (140, 40964), (152, 40889), (158, 40835), (161, 40829),

Gene: Fireball\_50 Start: 40315, Stop: 39920, Start Num: 57

Candidate Starts for Fireball\_50:

(Start: 57 @40315 has 6 MA's), (63, 40303), (95, 40231), (106, 40204), (134, 40102), (163, 39979),

Gene: FirstPlacePfu\_31 Start: 27379, Stop: 26978, Start Num: 74

Candidate Starts for FirstPlacePfu\_31:

(28, 27490), (Start: 38 @27460 has 2 MA's), (Start: 74 @27379 has 45 MA's), (85, 27352), (96, 27322), (Start: 105 @27304 has 1 MA's), (111, 27280), (Start: 115 @27262 has 3 MA's), (121, 27235), (129, 27202), (140, 27172), (169, 27022),

Gene: Fishburne\_31 Start: 27347, Stop: 26946, Start Num: 74

Candidate Starts for Fishburne\_31:

(28, 27458), (Start: 38 @27428 has 2 MA's), (45, 27404), (Start: 74 @27347 has 45 MA's), (85, 27320), (96, 27290), (Start: 105 @27272 has 1 MA's), (111, 27248), (Start: 115 @27230 has 3 MA's), (121, 27203), (129, 27170), (140, 27140), (169, 26990),

Gene: Fugax\_51 Start: 40059, Stop: 39646, Start Num: 76

Candidate Starts for Fugax\_51:

(33, 40164), (36, 40158), (44, 40134), (60, 40095), (Start: 76 @40059 has 63 MA's), (Start: 93 @40017 has 3 MA's), (114, 39951), (118, 39930), (129, 39888), (142, 39852), (156, 39744),

Gene: GMA5\_19 Start: 14633, Stop: 14346, Start Num: 96

Candidate Starts for GMA5\_19:

(Start: 74 @14684 has 45 MA's), (78, 14672), (87, 14651), (96, 14633), (111, 14591), (Start: 115 @14573 has 3 MA's), (118, 14558), (140, 14486), (155, 14381), (157, 14369),

Gene: GaloreK\_31 Start: 27343, Stop: 26942, Start Num: 74

Candidate Starts for GaloreK\_31:

(28, 27454), (Start: 38 @27424 has 2 MA's), (45, 27400), (Start: 74 @27343 has 45 MA's), (85, 27316), (96, 27286), (Start: 105 @27268 has 1 MA's), (111, 27244), (Start: 115 @27226 has 3 MA's), (121, 27199), (129, 27166), (140, 27136), (169, 26986),

Gene: Gavriela\_31 Start: 27604, Stop: 27203, Start Num: 74

Candidate Starts for Gavriela\_31:

(28, 27715), (Start: 38 @27685 has 2 MA's), (Start: 74 @27604 has 45 MA's), (85, 27577), (96, 27547), (Start: 105 @27529 has 1 MA's), (107, 27520), (111, 27505), (Start: 115 @27487 has 3 MA's), (121, 27460), (129, 27427), (140, 27397), (169, 27247),

Gene: Gezellig\_47 Start: 39919, Stop: 39506, Start Num: 76

Candidate Starts for Gezellig\_47:

(60, 39955), (Start: 76 @39919 has 63 MA's), (Start: 93 @39877 has 3 MA's), (114, 39811), (118, 39790), (129, 39748), (142, 39712), (156, 39604),

Gene: Glaske\_31 Start: 27604, Stop: 27203, Start Num: 74

Candidate Starts for Glaske\_31:

(28, 27715), (Start: 38 @27685 has 2 MA's), (Start: 74 @27604 has 45 MA's), (85, 27577), (96, 27547), (Start: 105 @27529 has 1 MA's), (107, 27520), (111, 27505), (Start: 115 @27487 has 3 MA's), (121,

27460), (129, 27427), (140, 27397), (169, 27247),

Gene: GoodLuckBabe\_43 Start: 30339, Stop: 30046, Start Num: 115

Candidate Starts for GoodLuckBabe\_43:

(30, 30567), (53, 30501), (Start: 69 @30465 has 6 MA's), (Start: 93 @30411 has 3 MA's), (Start: 105 @30381 has 1 MA's), (Start: 115 @30339 has 3 MA's), (138, 30258), (149, 30219), (153, 30150),

Gene: GreaseLightnin\_31 Start: 27596, Stop: 27195, Start Num: 74

Candidate Starts for GreaseLightnin\_31:

(28, 27707), (Start: 38 @27677 has 2 MA's), (Start: 74 @27596 has 45 MA's), (85, 27569), (96, 27539), (Start: 105 @27521 has 1 MA's), (107, 27512), (111, 27497), (Start: 115 @27479 has 3 MA's), (121, 27452), (129, 27419), (140, 27389), (169, 27239),

Gene: Grizzly\_33 Start: 29324, Stop: 28914, Start Num: 76

Candidate Starts for Grizzly\_33:

(19, 29489), (25, 29453), (27, 29447), (Start: 76 @29324 has 63 MA's), (Start: 83 @29306 has 2 MA's), (107, 29243), (114, 29216), (129, 29153), (152, 29048), (162, 28985), (166, 28979), (172, 28955),

Gene: Guacamole\_40 Start: 32920, Stop: 32501, Start Num: 59

Candidate Starts for Guacamole\_40:

(Start: 59 @32920 has 3 MA's), (98, 32830), (126, 32725), (135, 32695), (148, 32662), (164, 32554),

Gene: Guinevere\_43 Start: 29972, Stop: 29637, Start Num: 105

Candidate Starts for Guinevere\_43:

(30, 30158), (53, 30092), (Start: 69 @30056 has 6 MA's), (Start: 93 @30002 has 3 MA's), (Start: 105 @29972 has 1 MA's), (Start: 115 @29930 has 3 MA's), (138, 29849), (149, 29810), (153, 29741),

Gene: Gusanita\_40 Start: 30510, Stop: 30103, Start Num: 69

Candidate Starts for Gusanita\_40:

(Start: 69 @30510 has 6 MA's), (Start: 77 @30495 has 3 MA's), (125, 30354), (150, 30270), (153, 30201),

Gene: HUHilltop\_31 Start: 27380, Stop: 26979, Start Num: 74

Candidate Starts for HUHilltop\_31:

(28, 27491), (Start: 38 @27461 has 2 MA's), (45, 27437), (Start: 74 @27380 has 45 MA's), (85, 27353), (96, 27323), (Start: 105 @27305 has 1 MA's), (111, 27281), (Start: 115 @27263 has 3 MA's), (121, 27236), (129, 27203), (140, 27173), (169, 27023),

Gene: Halo\_33 Start: 29319, Stop: 28909, Start Num: 76

Candidate Starts for Halo\_33:

(19, 29484), (25, 29448), (27, 29442), (43, 29394), (Start: 76 @29319 has 63 MA's), (Start: 83 @29301 has 2 MA's), (107, 29238), (114, 29211), (118, 29190), (152, 29043), (162, 28980), (166, 28974),

Gene: Halo3\_49 Start: 40504, Stop: 40091, Start Num: 76

Candidate Starts for Halo3\_49:

(60, 40540), (Start: 76 @40504 has 63 MA's), (Start: 93 @40462 has 3 MA's), (114, 40396), (118, 40375), (129, 40333), (142, 40297), (156, 40189),

Gene: Heinz\_32 Start: 25504, Stop: 25082, Start Num: 54

Candidate Starts for Heinz\_32:

(Start: 54 @25504 has 2 MA's), (Start: 68 @25480 has 2 MA's), (92, 25432), (101, 25417), (106, 25408), (126, 25330), (133, 25303),

Gene: Hibiscus\_33 Start: 25453, Stop: 25031, Start Num: 54

Candidate Starts for Hibiscus\_33:

(Start: 54 @25453 has 2 MA's), (Start: 68 @25429 has 2 MA's), (92, 25381), (101, 25366), (106, 25357), (126, 25279), (133, 25252),

Gene: Hilltopfarm\_53 Start: 40885, Stop: 40484, Start Num: 66

Candidate Starts for Hilltopfarm\_53:

(Start: 66 @40885 has 2 MA's), (Start: 76 @40864 has 63 MA's), (96, 40810), (114, 40756), (124, 40714), (134, 40675), (140, 40663), (152, 40588), (158, 40534), (161, 40528),

Gene: Hitter\_43 Start: 32564, Stop: 32145, Start Num: 59

Candidate Starts for Hitter\_43:

(Start: 59 @32564 has 3 MA's), (98, 32474), (126, 32369), (135, 32339), (164, 32198), (168, 32183),

Gene: Hope\_33 Start: 29324, Stop: 28914, Start Num: 76

Candidate Starts for Hope\_33:

(19, 29489), (25, 29453), (27, 29447), (43, 29399), (Start: 76 @29324 has 63 MA's), (Start: 83 @29306 has 2 MA's), (107, 29243), (114, 29216), (118, 29195), (152, 29048), (162, 28985), (166, 28979),

Gene: Hotshotbaby7\_33 Start: 29324, Stop: 28914, Start Num: 76

Candidate Starts for Hotshotbaby7\_33:

(19, 29489), (25, 29453), (27, 29447), (43, 29399), (Start: 76 @29324 has 63 MA's), (Start: 83 @29306 has 2 MA's), (107, 29243), (114, 29216), (118, 29195), (152, 29048), (162, 28985), (166, 28979),

Gene: IsHungry\_37 Start: 28697, Stop: 28293, Start Num: 69

Candidate Starts for IsHungry\_37:

(Start: 69 @28697 has 6 MA's), (Start: 77 @28682 has 3 MA's), (Start: 93 @28655 has 3 MA's), (125, 28541), (143, 28490), (153, 28388), (173, 28334),

Gene: Island3\_34 Start: 29468, Stop: 29082, Start Num: 77

Candidate Starts for Island3\_34:

(Start: 52 @29525 has 1 MA's), (61, 29504), (Start: 64 @29495 has 1 MA's), (67, 29486), (Start: 77 @29468 has 3 MA's), (102, 29408), (106, 29396), (113, 29369), (123, 29327), (137, 29282), (144, 29255), (147, 29246), (169, 29126),

Gene: Jambalaya\_48 Start: 39566, Stop: 39153, Start Num: 76

Candidate Starts for Jambalaya\_48:

(60, 39602), (Start: 76 @39566 has 63 MA's), (Start: 93 @39524 has 3 MA's), (114, 39458), (118, 39437), (129, 39395), (142, 39359), (156, 39251),

Gene: Jane\_33 Start: 29324, Stop: 28914, Start Num: 76

Candidate Starts for Jane\_33:

(19, 29489), (25, 29453), (27, 29447), (43, 29399), (Start: 76 @29324 has 63 MA's), (Start: 83 @29306 has 2 MA's), (107, 29243), (114, 29216), (118, 29195), (152, 29048), (162, 28985), (166, 28979),

Gene: JasperJr\_40 Start: 32920, Stop: 32501, Start Num: 59

Candidate Starts for JasperJr\_40:

(Start: 59 @32920 has 3 MA's), (98, 32830), (126, 32725), (135, 32695), (148, 32662), (164, 32554),

Gene: Jebeks\_32 Start: 27332, Stop: 26931, Start Num: 74

Candidate Starts for Jebeks\_32:

(28, 27443), (Start: 38 @27413 has 2 MA's), (Start: 74 @27332 has 45 MA's), (85, 27305), (96, 27275), (Start: 105 @27257 has 1 MA's), (111, 27233), (Start: 115 @27215 has 3 MA's), (121, 27188), (129,

27155), (140, 27125), (169, 26975),

Gene: JohnPork\_51 Start: 39579, Stop: 39166, Start Num: 76

Candidate Starts for JohnPork\_51:

(33, 39684), (36, 39678), (44, 39654), (60, 39615), (Start: 76 @39579 has 63 MA's), (Start: 93 @39537 has 3 MA's), (114, 39471), (118, 39450), (129, 39408), (142, 39372),

Gene: Jojo24\_31 Start: 26167, Stop: 25778, Start Num: 57

Candidate Starts for Jojo24\_31:

(18, 26299), (20, 26284), (24, 26263), (26, 26248), (29, 26242), (Start: 57 @26167 has 6 MA's), (84, 26110), (97, 26077), (108, 26044), (120, 25984), (134, 25933),

Gene: Jonghyun\_33 Start: 29324, Stop: 28914, Start Num: 76

Candidate Starts for Jonghyun\_33:

(19, 29489), (25, 29453), (27, 29447), (43, 29399), (Start: 76 @29324 has 63 MA's), (Start: 83 @29306 has 2 MA's), (107, 29243), (114, 29216), (118, 29195), (152, 29048), (162, 28985), (166, 28979),

Gene: JorRay\_33 Start: 29324, Stop: 28914, Start Num: 76

Candidate Starts for JorRay\_33:

(19, 29489), (25, 29453), (27, 29447), (43, 29399), (Start: 76 @29324 has 63 MA's), (Start: 83 @29306 has 2 MA's), (107, 29243), (114, 29216), (118, 29195), (152, 29048), (162, 28985), (166, 28979),

Gene: Jung\_30 Start: 27311, Stop: 26910, Start Num: 74

Candidate Starts for Jung\_30:

(28, 27422), (Start: 38 @27392 has 2 MA's), (Start: 74 @27311 has 45 MA's), (85, 27284), (96, 27254), (Start: 105 @27236 has 1 MA's), (107, 27227), (111, 27212), (Start: 115 @27194 has 3 MA's), (121, 27167), (129, 27134), (140, 27104), (169, 26954),

Gene: Juniormint\_31 Start: 27383, Stop: 26982, Start Num: 74

Candidate Starts for Juniormint\_31:

(28, 27494), (Start: 38 @27464 has 2 MA's), (Start: 74 @27383 has 45 MA's), (85, 27356), (96, 27326), (Start: 105 @27308 has 1 MA's), (107, 27299), (111, 27284), (Start: 115 @27266 has 3 MA's), (121, 27239), (129, 27206), (140, 27176), (169, 27026),

Gene: Kari\_31 Start: 27344, Stop: 26943, Start Num: 74

Candidate Starts for Kari\_31:

(28, 27455), (Start: 38 @27425 has 2 MA's), (45, 27401), (Start: 74 @27344 has 45 MA's), (85, 27317), (96, 27287), (Start: 105 @27269 has 1 MA's), (111, 27245), (Start: 115 @27227 has 3 MA's), (121, 27200), (129, 27167), (140, 27137), (169, 26987),

Gene: Kasen3\_33 Start: 29325, Stop: 28915, Start Num: 76

Candidate Starts for Kasen3\_33:

(19, 29490), (25, 29454), (27, 29448), (Start: 76 @29325 has 63 MA's), (Start: 83 @29307 has 2 MA's), (107, 29244), (114, 29217), (129, 29154), (152, 29049), (162, 28986), (166, 28980), (172, 28956),

Gene: Kihatsu\_43 Start: 31043, Stop: 30516, Start Num: 35

Candidate Starts for Kihatsu\_43:

(Start: 35 @31043 has 2 MA's), (41, 31019), (46, 31007), (Start: 64 @30965 has 1 MA's), (Start: 69 @30953 has 6 MA's), (101, 30884), (106, 30869), (145, 30719), (153, 30626),

Gene: Kiko\_41 Start: 32143, Stop: 31775, Start Num: 70

Candidate Starts for Kiko\_41:

(51, 32188), (Start: 70 @32143 has 1 MA's), (84, 32113), (88, 32104), (104, 32065), (107, 32056), (128, 31969), (129, 31966), (142, 31930),

Gene: KilKor\_31 Start: 27604, Stop: 27203, Start Num: 74

Candidate Starts for KilKor\_31:

(28, 27715), (Start: 38 @27685 has 2 MA's), (Start: 74 @27604 has 45 MA's), (85, 27577), (96, 27547), (Start: 105 @27529 has 1 MA's), (107, 27520), (111, 27505), (Start: 115 @27487 has 3 MA's), (121, 27460), (129, 27427), (140, 27397), (169, 27247),

Gene: KimmyK\_49 Start: 40501, Stop: 40088, Start Num: 76

Candidate Starts for KimmyK\_49:

(33, 40606), (36, 40600), (44, 40576), (60, 40537), (Start: 76 @40501 has 63 MA's), (Start: 93 @40459 has 3 MA's), (114, 40393), (118, 40372), (129, 40330), (142, 40294), (156, 40186),

Gene: Ksquared\_31 Start: 27361, Stop: 26960, Start Num: 74

Candidate Starts for Ksquared\_31:

(28, 27472), (Start: 38 @27442 has 2 MA's), (Start: 74 @27361 has 45 MA's), (85, 27334), (96, 27304), (Start: 105 @27286 has 1 MA's), (107, 27277), (111, 27262), (Start: 115 @27244 has 3 MA's), (121, 27217), (129, 27184), (140, 27154), (169, 27004),

Gene: Langerak\_31 Start: 27363, Stop: 26962, Start Num: 74

Candidate Starts for Langerak\_31:

(28, 27474), (Start: 38 @27444 has 2 MA's), (45, 27420), (Start: 74 @27363 has 45 MA's), (85, 27336), (96, 27306), (Start: 105 @27288 has 1 MA's), (111, 27264), (Start: 115 @27246 has 3 MA's), (121, 27219), (129, 27186), (140, 27156), (169, 27006),

Gene: Liefie\_33 Start: 29304, Stop: 28912, Start Num: 83

Candidate Starts for Liefie\_33:

(19, 29487), (25, 29451), (27, 29445), (43, 29397), (Start: 76 @29322 has 63 MA's), (Start: 83 @29304 has 2 MA's), (107, 29241), (114, 29214), (118, 29193), (152, 29046), (162, 28983), (166, 28977),

Gene: LouisV14\_33 Start: 29324, Stop: 28914, Start Num: 76

Candidate Starts for LouisV14\_33:

(1, 30914), (2, 30821), (3, 30602), (4, 30569), (5, 30500), (6, 30452), (7, 30383), (8, 30134), (9, 30122), (10, 29981), (11, 29978), (12, 29885), (13, 29813), (14, 29696), (15, 29588), (19, 29489), (25, 29453), (27, 29447), (43, 29399), (Start: 76 @29324 has 63 MA's), (Start: 83 @29306 has 2 MA's), (107, 29243), (114, 29216), (118, 29195), (152, 29048), (162, 28985), (166, 28979),

Gene: Majeke\_31 Start: 27385, Stop: 26984, Start Num: 74

Candidate Starts for Majeke\_31:

(28, 27496), (Start: 38 @27466 has 2 MA's), (45, 27442), (Start: 74 @27385 has 45 MA's), (85, 27358), (96, 27328), (Start: 105 @27310 has 1 MA's), (111, 27286), (Start: 115 @27268 has 3 MA's), (121, 27241), (129, 27208), (140, 27178), (169, 27028),

Gene: Malithi\_31 Start: 27270, Stop: 26800, Start Num: 74

Candidate Starts for Malithi\_31:

(28, 27381), (Start: 38 @27351 has 2 MA's), (Start: 74 @27270 has 45 MA's), (85, 27243), (96, 27213), (Start: 105 @27195 has 1 MA's), (107, 27186), (111, 27171), (Start: 115 @27153 has 3 MA's), (121, 27126), (129, 27093), (140, 27063), (169, 26913), (175, 26886), (179, 26808),

Gene: Mangethe\_31 Start: 27385, Stop: 26984, Start Num: 74

Candidate Starts for Mangethe\_31:

(28, 27496), (Start: 38 @27466 has 2 MA's), (45, 27442), (Start: 74 @27385 has 45 MA's), (85, 27358), (96, 27328), (Start: 105 @27310 has 1 MA's), (111, 27286), (Start: 115 @27268 has 3 MA's), (121, 27241), (129, 27208), (140, 27178), (169, 27028),

Gene: Marmie\_33 Start: 29324, Stop: 28914, Start Num: 76

Candidate Starts for Marmie\_33:

(19, 29489), (25, 29453), (27, 29447), (43, 29399), (Start: 76 @29324 has 63 MA's), (Start: 83 @29306 has 2 MA's), (107, 29243), (114, 29216), (118, 29195), (152, 29048), (162, 28985), (166, 28979),

Gene: Megiddo\_31 Start: 27604, Stop: 27203, Start Num: 74

Candidate Starts for Megiddo\_31:

(28, 27715), (Start: 38 @27685 has 2 MA's), (Start: 74 @27604 has 45 MA's), (85, 27577), (96, 27547), (Start: 105 @27529 has 1 MA's), (107, 27520), (111, 27505), (Start: 115 @27487 has 3 MA's), (121, 27460), (129, 27427), (140, 27397), (169, 27247),

Gene: Melba\_41 Start: 32860, Stop: 32474, Start Num: 76

Candidate Starts for Melba\_41:

(Start: 58 @32896 has 8 MA's), (72, 32866), (Start: 76 @32860 has 63 MA's), (95, 32812), (141, 32659), (164, 32527),

Gene: MillySue\_42 Start: 30226, Stop: 29900, Start Num: 105

Candidate Starts for MillySue\_42:

(30, 30412), (53, 30346), (Start: 69 @30310 has 6 MA's), (Start: 93 @30256 has 3 MA's), (Start: 105 @30226 has 1 MA's), (Start: 115 @30184 has 3 MA's), (138, 30103), (149, 30064), (153, 29995), (167, 29959), (171, 29941),

Gene: MintFen\_42 Start: 32970, Stop: 32548, Start Num: 58

Candidate Starts for MintFen\_42:

(Start: 58 @32970 has 8 MA's), (72, 32940), (Start: 76 @32934 has 63 MA's), (95, 32886), (141, 32733), (164, 32601),

Gene: Moonflower\_39 Start: 33232, Stop: 32912, Start Num: 93

Candidate Starts for Moonflower\_39:

(Start: 65 @33292 has 1 MA's), (Start: 73 @33274 has 2 MA's), (Start: 93 @33232 has 3 MA's), (140, 33073), (142, 33067), (159, 32938), (160, 32935), (165, 32926),

Gene: Mowgli\_33 Start: 29324, Stop: 28914, Start Num: 76

Candidate Starts for Mowgli\_33:

(19, 29489), (25, 29453), (27, 29447), (43, 29399), (Start: 76 @29324 has 63 MA's), (Start: 83 @29306 has 2 MA's), (107, 29243), (114, 29216), (118, 29195), (152, 29048), (162, 28985), (166, 28979),

Gene: Mutzi\_48 Start: 40895, Stop: 40482, Start Num: 76

Candidate Starts for Mutzi\_48:

(60, 40931), (Start: 76 @40895 has 63 MA's), (Start: 93 @40853 has 3 MA's), (114, 40787), (118, 40766), (129, 40724), (142, 40688), (156, 40580),

Gene: Nazo\_35 Start: 29476, Stop: 29075, Start Num: 74

Candidate Starts for Nazo\_35:

(21, 29623), (32, 29581), (44, 29542), (Start: 58 @29506 has 8 MA's), (Start: 74 @29476 has 45 MA's), (109, 29386), (111, 29377), (121, 29332), (129, 29299), (140, 29269), (169, 29119),

Gene: Necropolis\_31 Start: 27344, Stop: 26943, Start Num: 74

Candidate Starts for Necropolis\_31:

(28, 27455), (Start: 38 @27425 has 2 MA's), (45, 27401), (Start: 74 @27344 has 45 MA's), (85, 27317), (96, 27287), (Start: 105 @27269 has 1 MA's), (111, 27245), (Start: 115 @27227 has 3 MA's), (121, 27200), (129, 27167), (140, 27137), (169, 26987),

Gene: Nubi\_48 Start: 39892, Stop: 39479, Start Num: 76

Candidate Starts for Nubi\_48:

(33, 39997), (36, 39991), (44, 39967), (60, 39928), (Start: 76 @39892 has 63 MA's), (Start: 93 @39850 has 3 MA's), (114, 39784), (118, 39763), (129, 39721), (142, 39685), (156, 39577),

Gene: Nyceirae\_36 Start: 30000, Stop: 29677, Start Num: 89

Candidate Starts for Nyceirae\_36:

(Start: 73 @30033 has 2 MA's), (Start: 89 @30000 has 1 MA's), (96, 29979), (Start: 115 @29919 has 3 MA's), (118, 29904), (132, 29856), (134, 29844), (160, 29700),

Gene: Obliviate\_38 Start: 31257, Stop: 30835, Start Num: 58

Candidate Starts for Obliviate\_38:

(Start: 58 @31257 has 8 MA's), (72, 31227), (Start: 76 @31221 has 63 MA's), (95, 31173), (141, 31020), (164, 30888), (168, 30873),

Gene: Olga\_33 Start: 29324, Stop: 28914, Start Num: 76

Candidate Starts for Olga\_33:

(19, 29489), (25, 29453), (27, 29447), (43, 29399), (Start: 76 @29324 has 63 MA's), (Start: 83 @29306 has 2 MA's), (107, 29243), (114, 29216), (118, 29195), (152, 29048), (162, 28985), (166, 28979),

Gene: Opie\_43 Start: 33208, Stop: 32843, Start Num: 73

Candidate Starts for Opie\_43:

(Start: 65 @33226 has 1 MA's), (Start: 73 @33208 has 2 MA's), (Start: 93 @33166 has 3 MA's), (119, 33079), (130, 33034), (140, 33007), (142, 33001), (165, 32857),

Gene: PaintedDog\_40 Start: 31112, Stop: 30717, Start Num: 77

Candidate Starts for PaintedDog\_40:

(55, 31157), (61, 31148), (Start: 64 @31139 has 1 MA's), (67, 31130), (Start: 77 @31112 has 3 MA's), (102, 31052), (106, 31040), (113, 31013), (123, 30971), (137, 30926), (144, 30899), (147, 30890), (169, 30770),

Gene: Paito\_33 Start: 29505, Stop: 29047, Start Num: 76

Candidate Starts for Paito\_33:

(Start: 76 @29505 has 63 MA's), (Start: 83 @29487 has 2 MA's), (99, 29448), (107, 29424), (114, 29397), (129, 29334), (152, 29229), (178, 29088),

Gene: PeanutPie\_31 Start: 27343, Stop: 26942, Start Num: 74

Candidate Starts for PeanutPie\_31:

(28, 27454), (Start: 38 @27424 has 2 MA's), (Start: 74 @27343 has 45 MA's), (85, 27316), (96, 27286), (Start: 105 @27268 has 1 MA's), (107, 27259), (111, 27244), (Start: 115 @27226 has 3 MA's), (121, 27199), (129, 27166), (140, 27136), (169, 26986),

Gene: Periodt\_33 Start: 29315, Stop: 28905, Start Num: 76

Candidate Starts for Periodt\_33:

(19, 29480), (25, 29444), (27, 29438), (43, 29390), (Start: 76 @29315 has 63 MA's), (Start: 83 @29297 has 2 MA's), (107, 29234), (114, 29207), (118, 29186), (152, 29039), (162, 28976), (166, 28970),

Gene: Petra\_39 Start: 31580, Stop: 31194, Start Num: 76

Candidate Starts for Petra\_39:

(Start: 58 @31616 has 8 MA's), (72, 31586), (Start: 76 @31580 has 63 MA's), (95, 31532), (141, 31379), (164, 31247), (168, 31232),

Gene: Phalm\_31 Start: 27604, Stop: 27203, Start Num: 74

Candidate Starts for Phalm\_31:

(28, 27715), (Start: 38 @27685 has 2 MA's), (Start: 74 @27604 has 45 MA's), (85, 27577), (96, 27547), (Start: 105 @27529 has 1 MA's), (107, 27520), (111, 27505), (Start: 115 @27487 has 3 MA's), (121, 27460), (129, 27427), (140, 27397), (169, 27247),

Gene: Phayonce\_33 Start: 29388, Stop: 28987, Start Num: 74

Candidate Starts for Phayonce\_33:

(Start: 74 @29388 has 45 MA's), (82, 29370), (107, 29304), (109, 29298), (111, 29289), (121, 29244), (129, 29211), (140, 29181),

Gene: Phegasus\_31 Start: 27433, Stop: 26951, Start Num: 38

Candidate Starts for Phegasus\_31:

(28, 27463), (Start: 38 @27433 has 2 MA's), (Start: 74 @27352 has 45 MA's), (85, 27325), (96, 27295), (Start: 105 @27277 has 1 MA's), (111, 27253), (Start: 115 @27235 has 3 MA's), (121, 27208), (129, 27175), (140, 27145), (169, 26995),

Gene: Phineas\_31 Start: 27718, Stop: 27317, Start Num: 74

Candidate Starts for Phineas\_31:

(28, 27829), (Start: 38 @27799 has 2 MA's), (45, 27775), (Start: 74 @27718 has 45 MA's), (85, 27691), (96, 27661), (Start: 105 @27643 has 1 MA's), (111, 27619), (Start: 115 @27601 has 3 MA's), (121, 27574), (129, 27541), (140, 27511), (169, 27361),

Gene: Phishy\_37 Start: 31530, Stop: 31159, Start Num: 68

Candidate Starts for Phishy\_37:

(37, 31611), (42, 31593), (56, 31557), (Start: 68 @31530 has 2 MA's), (Start: 71 @31527 has 1 MA's), (75, 31521), (80, 31509), (86, 31494), (90, 31485), (101, 31461), (112, 31422), (118, 31392), (134, 31329), (136, 31326),

Gene: Phlop\_47 Start: 39973, Stop: 39560, Start Num: 76

Candidate Starts for Phlop\_47:

(33, 40078), (36, 40072), (44, 40048), (60, 40009), (Start: 76 @39973 has 63 MA's), (Start: 93 @39931 has 3 MA's), (114, 39865), (118, 39844), (129, 39802), (142, 39766), (156, 39658),

Gene: Phreak\_33 Start: 29324, Stop: 28914, Start Num: 76

Candidate Starts for Phreak\_33:

(19, 29489), (25, 29453), (27, 29447), (43, 29399), (Start: 76 @29324 has 63 MA's), (Start: 83 @29306 has 2 MA's), (107, 29243), (114, 29216), (118, 29195), (152, 29048), (162, 28985), (166, 28979),

Gene: PhrostedPhlake\_44 Start: 32850, Stop: 32413, Start Num: 52

Candidate Starts for PhrostedPhlake\_44:

(47, 32859), (Start: 52 @32850 has 1 MA's), (Start: 58 @32838 has 8 MA's), (60, 32835), (62, 32832), (81, 32796), (91, 32772), (110, 32724), (116, 32697), (131, 32646), (174, 32457),

Gene: PinkCoffee\_50 Start: 40076, Stop: 39663, Start Num: 76

Candidate Starts for PinkCoffee\_50:

(33, 40181), (36, 40175), (44, 40151), (60, 40112), (Start: 76 @40076 has 63 MA's), (Start: 93 @40034 has 3 MA's), (114, 39968), (118, 39947), (129, 39905), (142, 39869), (156, 39761),

Gene: Pipp\_38 Start: 31416, Stop: 30997, Start Num: 76

Candidate Starts for Pipp\_38:

(16, 31644), (Start: 76 @31416 has 63 MA's), (103, 31350), (118, 31287), (130, 31239), (139, 31215),

Gene: Plagueis\_33 Start: 29159, Stop: 28749, Start Num: 76

Candidate Starts for Plagueis\_33:

(19, 29324), (25, 29288), (27, 29282), (Start: 76 @29159 has 63 MA's), (Start: 83 @29141 has 2 MA's), (107, 29078), (114, 29051), (152, 28883), (162, 28820), (166, 28814),

Gene: Polkaroo\_31 Start: 27361, Stop: 26960, Start Num: 74

Candidate Starts for Polkaroo\_31:

(28, 27472), (Start: 38 @27442 has 2 MA's), (Start: 74 @27361 has 45 MA's), (85, 27334), (96, 27304), (Start: 105 @27286 has 1 MA's), (107, 27277), (111, 27262), (Start: 115 @27244 has 3 MA's), (121, 27217), (129, 27184), (140, 27154), (169, 27004),

Gene: Popper\_41 Start: 29991, Stop: 29548, Start Num: 64

Candidate Starts for Popper\_41:

(Start: 35 @30069 has 2 MA's), (41, 30045), (46, 30033), (Start: 64 @29991 has 1 MA's), (Start: 69 @29979 has 6 MA's), (101, 29910), (106, 29895), (145, 29745), (153, 29652),

Gene: Portcullis\_50 Start: 39579, Stop: 39166, Start Num: 76

Candidate Starts for Portcullis\_50:

(33, 39684), (36, 39678), (44, 39654), (60, 39615), (Start: 76 @39579 has 63 MA's), (Start: 93 @39537 has 3 MA's), (114, 39471), (118, 39450), (129, 39408), (142, 39372),

Gene: PullumCavea\_47 Start: 39973, Stop: 39560, Start Num: 76

Candidate Starts for PullumCavea\_47:

(33, 40078), (36, 40072), (44, 40048), (60, 40009), (Start: 76 @39973 has 63 MA's), (Start: 93 @39931 has 3 MA's), (114, 39865), (118, 39844), (129, 39802), (142, 39766), (156, 39658),

Gene: Purky\_38 Start: 30118, Stop: 29705, Start Num: 74

Candidate Starts for Purky\_38:

(Start: 74 @30118 has 45 MA's), (82, 30100), (Start: 93 @30073 has 3 MA's), (107, 30034), (109, 30028), (111, 30019), (121, 29974), (129, 29941), (140, 29911),

Gene: Pygmy\_33 Start: 29186, Stop: 28785, Start Num: 74

Candidate Starts for Pygmy\_33:

(Start: 74 @29186 has 45 MA's), (85, 29159), (96, 29129), (Start: 105 @29111 has 1 MA's), (111, 29087), (Start: 115 @29069 has 3 MA's), (121, 29042), (129, 29009), (140, 28979), (169, 28829),

Gene: QuinnAvery\_43 Start: 30914, Stop: 30495, Start Num: 69

Candidate Starts for QuinnAvery\_43:

(30, 31016), (53, 30950), (Start: 69 @30914 has 6 MA's), (Start: 93 @30860 has 3 MA's), (Start: 105 @30830 has 1 MA's), (Start: 115 @30788 has 3 MA's), (138, 30707), (149, 30668), (153, 30599),

Gene: Rabbs\_33 Start: 29407, Stop: 28997, Start Num: 76

Candidate Starts for Rabbs\_33:

(19, 29572), (25, 29536), (27, 29530), (Start: 69 @29419 has 6 MA's), (Start: 76 @29407 has 63 MA's), (Start: 83 @29389 has 2 MA's), (114, 29299), (118, 29278), (152, 29131), (166, 29062), (172, 29038),

Gene: RogerDodger\_51 Start: 40116, Stop: 39703, Start Num: 76

Candidate Starts for RogerDodger\_51:

(60, 40152), (Start: 76 @40116 has 63 MA's), (Start: 93 @40074 has 3 MA's), (114, 40008), (118, 39987), (129, 39945), (142, 39909),

Gene: Salvador\_47 Start: 39785, Stop: 39372, Start Num: 76

Candidate Starts for Salvador\_47:

(33, 39890), (36, 39884), (44, 39860), (60, 39821), (Start: 76 @39785 has 63 MA's), (Start: 93 @39743 has 3 MA's), (114, 39677), (118, 39656), (129, 39614), (142, 39578), (156, 39470),

Gene: Santhid\_31 Start: 24886, Stop: 24497, Start Num: 57

Candidate Starts for Santhid\_31:

(18, 25018), (20, 25003), (24, 24982), (29, 24961), (Start: 57 @24886 has 6 MA's), (84, 24829), (97, 24796), (108, 24763), (120, 24703), (134, 24652),

Gene: Savbucketdawg\_48 Start: 39566, Stop: 39153, Start Num: 76

Candidate Starts for Savbucketdawg\_48:

(60, 39602), (Start: 76 @39566 has 63 MA's), (Start: 93 @39524 has 3 MA's), (114, 39458), (118, 39437), (129, 39395), (142, 39359), (156, 39251),

Gene: Schism\_45 Start: 30719, Stop: 30426, Start Num: 115

Candidate Starts for Schism\_45:

(30, 30947), (53, 30881), (Start: 69 @30845 has 6 MA's), (Start: 93 @30791 has 3 MA's), (Start: 105 @30761 has 1 MA's), (Start: 115 @30719 has 3 MA's), (138, 30638), (149, 30599), (153, 30530),

Gene: ShaboiShabazz\_33 Start: 29324, Stop: 28914, Start Num: 76

Candidate Starts for ShaboiShabazz\_33:

(19, 29489), (25, 29453), (27, 29447), (43, 29399), (Start: 76 @29324 has 63 MA's), (Start: 83 @29306 has 2 MA's), (107, 29243), (114, 29216), (118, 29195), (152, 29048), (162, 28985), (166, 28979),

Gene: Shipwreck\_33 Start: 29161, Stop: 28760, Start Num: 74

Candidate Starts for Shipwreck\_33:

(Start: 74 @29161 has 45 MA's), (85, 29134), (96, 29104), (Start: 105 @29086 has 1 MA's), (111, 29062), (Start: 115 @29044 has 3 MA's), (121, 29017), (129, 28984), (140, 28954), (169, 28804),

Gene: Sizemore\_33 Start: 29325, Stop: 28915, Start Num: 76

Candidate Starts for Sizemore\_33:

(19, 29490), (25, 29454), (27, 29448), (Start: 76 @29325 has 63 MA's), (Start: 83 @29307 has 2 MA's), (107, 29244), (114, 29217), (129, 29154), (152, 29049), (162, 28986), (166, 28980), (172, 28956),

Gene: SmokingBunny\_48 Start: 39878, Stop: 39465, Start Num: 76

Candidate Starts for SmokingBunny\_48:

(33, 39983), (36, 39977), (44, 39953), (60, 39914), (Start: 76 @39878 has 63 MA's), (Start: 93 @39836 has 3 MA's), (114, 39770), (118, 39749), (129, 39707), (142, 39671), (156, 39563),

Gene: Sonah\_31 Start: 27333, Stop: 26932, Start Num: 74

Candidate Starts for Sonah\_31:

(28, 27444), (Start: 38 @27414 has 2 MA's), (Start: 74 @27333 has 45 MA's), (85, 27306), (96, 27276), (Start: 105 @27258 has 1 MA's), (107, 27249), (111, 27234), (Start: 115 @27216 has 3 MA's), (121, 27189), (129, 27156), (140, 27126), (169, 26976),

Gene: StevieRay\_31 Start: 27312, Stop: 26911, Start Num: 74

Candidate Starts for StevieRay\_31:

(28, 27423), (Start: 38 @27393 has 2 MA's), (Start: 74 @27312 has 45 MA's), (85, 27285), (96, 27255), (Start: 105 @27237 has 1 MA's), (107, 27228), (111, 27213), (Start: 115 @27195 has 3 MA's), (121, 27168), (129, 27135), (140, 27105), (169, 26955),

Gene: StressBall\_31 Start: 27604, Stop: 27203, Start Num: 74

Candidate Starts for StressBall\_31:

(28, 27715), (Start: 38 @27685 has 2 MA's), (Start: 74 @27604 has 45 MA's), (85, 27577), (96, 27547), (Start: 105 @27529 has 1 MA's), (107, 27520), (111, 27505), (Start: 115 @27487 has 3 MA's), (121, 27460), (129, 27427), (140, 27397), (169, 27247),

Gene: Sweets\_33 Start: 29319, Stop: 28909, Start Num: 76

Candidate Starts for Sweets\_33:

(19, 29484), (25, 29448), (27, 29442), (43, 29394), (Start: 76 @29319 has 63 MA's), (Start: 83 @29301 has 2 MA's), (107, 29238), (114, 29211), (118, 29190), (152, 29043), (162, 28980), (166, 28974),

Gene: Taheera\_33 Start: 29454, Stop: 29032, Start Num: 69

Candidate Starts for Taheera\_33:

(19, 29607), (25, 29571), (27, 29565), (Start: 69 @29454 has 6 MA's), (Start: 76 @29442 has 63 MA's), (Start: 83 @29424 has 2 MA's), (107, 29361), (114, 29334), (118, 29313), (152, 29166), (166, 29097), (172, 29073), (176, 29052),

Gene: TaronosaurusRx\_42 Start: 31610, Stop: 31248, Start Num: 73

Candidate Starts for TaronosaurusRx\_42:

(Start: 65 @31628 has 1 MA's), (Start: 73 @31610 has 2 MA's), (Start: 93 @31568 has 3 MA's), (134, 31421), (142, 31403), (165, 31262),

Gene: Tarzan\_32 Start: 26056, Stop: 25667, Start Num: 57

Candidate Starts for Tarzan\_32:

(18, 26188), (20, 26173), (24, 26152), (29, 26131), (30, 26128), (Start: 57 @26056 has 6 MA's), (84, 25999), (94, 25978), (97, 25966), (108, 25933), (120, 25873), (134, 25822),

Gene: Techage\_31 Start: 27370, Stop: 26969, Start Num: 74

Candidate Starts for Techage\_31:

(28, 27481), (Start: 38 @27451 has 2 MA's), (45, 27427), (Start: 74 @27370 has 45 MA's), (85, 27343), (96, 27313), (Start: 105 @27295 has 1 MA's), (111, 27271), (Start: 115 @27253 has 3 MA's), (121, 27226), (129, 27193), (140, 27163), (169, 27013),

Gene: Terror\_33 Start: 29454, Stop: 29032, Start Num: 69

Candidate Starts for Terror\_33:

(19, 29607), (25, 29571), (27, 29565), (Start: 69 @29454 has 6 MA's), (Start: 76 @29442 has 63 MA's), (Start: 83 @29424 has 2 MA's), (107, 29361), (114, 29334), (118, 29313), (152, 29166), (166, 29097), (172, 29073), (176, 29052),

Gene: Thespis\_31 Start: 27421, Stop: 26939, Start Num: 38

Candidate Starts for Thespis\_31:

(28, 27451), (Start: 38 @27421 has 2 MA's), (Start: 74 @27340 has 45 MA's), (85, 27313), (96, 27283), (Start: 105 @27265 has 1 MA's), (107, 27256), (111, 27241), (Start: 115 @27223 has 3 MA's), (121, 27196), (129, 27163), (140, 27133), (169, 26983),

Gene: Togo\_47 Start: 39878, Stop: 39465, Start Num: 76

Candidate Starts for Togo\_47:

(33, 39983), (36, 39977), (44, 39953), (60, 39914), (Start: 76 @39878 has 63 MA's), (Start: 93 @39836 has 3 MA's), (114, 39770), (118, 39749), (129, 39707), (142, 39671), (156, 39563),

Gene: TomBrady\_33 Start: 29325, Stop: 28915, Start Num: 76

Candidate Starts for TomBrady\_33:

(19, 29490), (25, 29454), (27, 29448), (43, 29400), (Start: 76 @29325 has 63 MA's), (Start: 83 @29307 has 2 MA's), (107, 29244), (114, 29217), (118, 29196), (152, 29049), (162, 28986), (166, 28980),

Gene: Twister6\_50 Start: 39679, Stop: 39266, Start Num: 76

Candidate Starts for Twister6\_50:

(33, 39784), (36, 39778), (44, 39754), (60, 39715), (Start: 76 @39679 has 63 MA's), (Start: 93 @39637 has 3 MA's), (114, 39571), (118, 39550), (129, 39508), (142, 39472),

Gene: Typha\_53 Start: 41198, Stop: 40797, Start Num: 66

Candidate Starts for Typha\_53:

(Start: 66 @41198 has 2 MA's), (Start: 76 @41177 has 63 MA's), (96, 41123), (114, 41069), (124, 41027), (134, 40988), (140, 40976), (152, 40901), (158, 40847), (161, 40841),

Gene: Valary\_50 Start: 40721, Stop: 40308, Start Num: 76

Candidate Starts for Valary\_50:

(60, 40757), (Start: 76 @40721 has 63 MA's), (Start: 93 @40679 has 3 MA's), (114, 40613), (118, 40592), (129, 40550), (142, 40514), (156, 40406),

Gene: VanDeWege\_51 Start: 40013, Stop: 39600, Start Num: 76

Candidate Starts for VanDeWege\_51:

(60, 40049), (Start: 76 @40013 has 63 MA's), (Start: 93 @39971 has 3 MA's), (114, 39905), (118, 39884), (129, 39842), (142, 39806), (156, 39698),

Gene: Venti\_31 Start: 27347, Stop: 26946, Start Num: 74

Candidate Starts for Venti\_31:

(28, 27458), (Start: 38 @27428 has 2 MA's), (45, 27404), (Start: 74 @27347 has 45 MA's), (85, 27320), (96, 27290), (Start: 105 @27272 has 1 MA's), (111, 27248), (Start: 115 @27230 has 3 MA's), (121, 27203), (129, 27170), (140, 27140), (169, 26990),

Gene: Vidya\_31 Start: 27380, Stop: 26979, Start Num: 74

Candidate Starts for Vidya\_31:

(28, 27491), (Start: 38 @27461 has 2 MA's), (45, 27437), (Start: 74 @27380 has 45 MA's), (85, 27353), (96, 27323), (Start: 105 @27305 has 1 MA's), (111, 27281), (Start: 115 @27263 has 3 MA's), (121, 27236), (129, 27203), (140, 27173), (169, 27023),

Gene: Willsammy\_30 Start: 27087, Stop: 26686, Start Num: 74

Candidate Starts for Willsammy\_30:

(28, 27198), (Start: 38 @27168 has 2 MA's), (Start: 74 @27087 has 45 MA's), (85, 27060), (96, 27030), (Start: 105 @27012 has 1 MA's), (107, 27003), (111, 26988), (Start: 115 @26970 has 3 MA's), (121, 26943), (129, 26910), (140, 26880), (169, 26730),

Gene: Wizard\_47 Start: 39877, Stop: 39506, Start Num: 93

Candidate Starts for Wizard\_47:

(60, 39955), (Start: 76 @39919 has 63 MA's), (Start: 93 @39877 has 3 MA's), (114, 39811), (118, 39790), (129, 39748), (142, 39712), (156, 39604),

Gene: YungMoney\_51 Start: 42233, Stop: 41832, Start Num: 57

Candidate Starts for YungMoney\_51:

(17, 42377), (23, 42332), (31, 42305), (48, 42254), (Start: 57 @42233 has 6 MA's), (79, 42188), (113, 42092), (127, 42035), (134, 42008), (163, 41891),

Gene: Zaheer\_43 Start: 31154, Stop: 30861, Start Num: 115

Candidate Starts for Zaheer\_43:

(30, 31382), (53, 31316), (Start: 69 @31280 has 6 MA's), (Start: 93 @31226 has 3 MA's), (Start: 105 @31196 has 1 MA's), (Start: 115 @31154 has 3 MA's), (138, 31073), (149, 31034), (153, 30965),

Gene: Zarbodnamra\_41 Start: 32378, Stop: 31956, Start Num: 58

Candidate Starts for Zarbodnamra\_41:

(Start: 58 @32378 has 8 MA's), (72, 32348), (Start: 76 @32342 has 63 MA's), (95, 32294), (141, 32141), (164, 32009),

Gene: Zilizebeth\_31 Start: 27379, Stop: 26978, Start Num: 74

Candidate Starts for Zilizebeth\_31:

(28, 27490), (Start: 38 @27460 has 2 MA's), (45, 27436), (Start: 74 @27379 has 45 MA's), (85, 27352), (96, 27322), (Start: 105 @27304 has 1 MA's), (111, 27280), (Start: 115 @27262 has 3 MA's), (121, 27235), (129, 27202), (140, 27172), (169, 27022),

Gene: Zilla\_40 Start: 32125, Stop: 31703, Start Num: 58

Candidate Starts for Zilla\_40:

(Start: 58 @32125 has 8 MA's), (72, 32095), (Start: 76 @32089 has 63 MA's), (95, 32041), (141, 31888), (164, 31756),