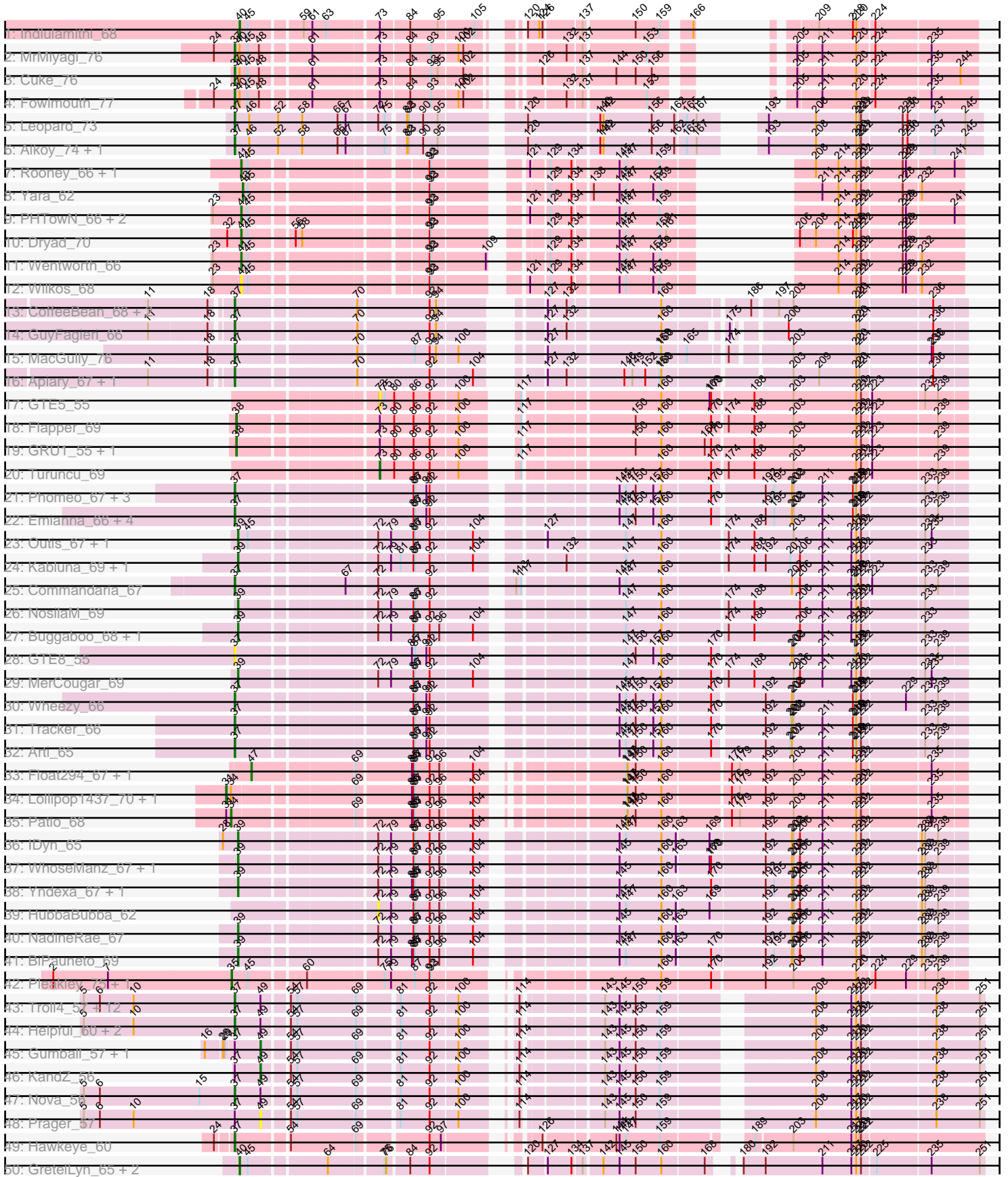
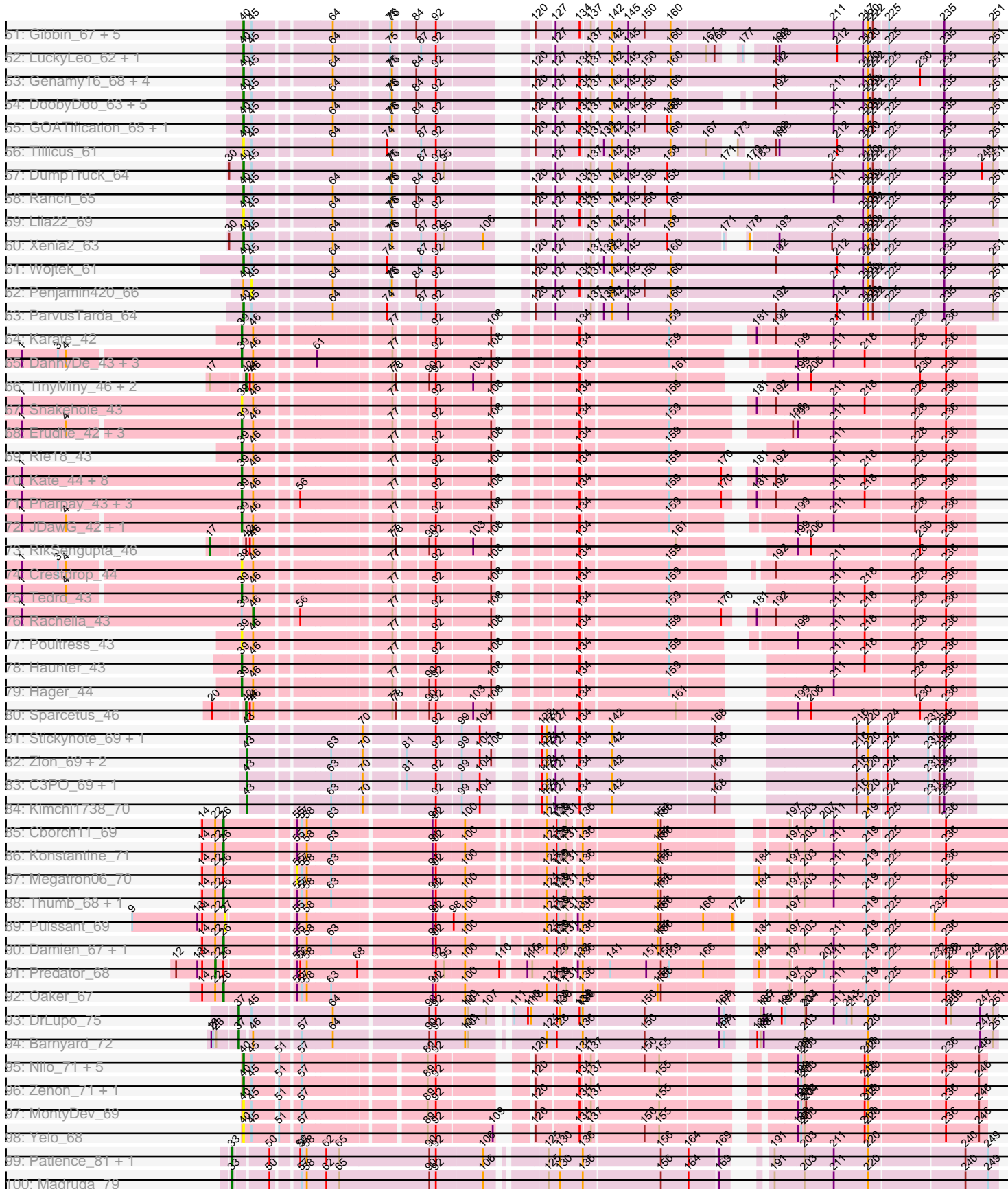


Pham 163366



Pham 163366





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 163366 Report

This analysis was run 04/28/24 on database version 559.

Pham number 163366 has 192 members, 30 are drafts.

Phages represented in each track:

- Track 1 : Indlulamithi\_68
- Track 2 : MrMiyagi\_76
- Track 3 : Cuke\_76
- Track 4 : Fowlmouth\_77
- Track 5 : Leopard\_73
- Track 6 : Aikoy\_74, Onyinye\_74
- Track 7 : Rooney\_66, Gibson\_66
- Track 8 : Yara\_62
- Track 9 : PHTowN\_66, Lizz\_66, ShakeNBake\_66
- Track 10 : Dryad\_70
- Track 11 : Wentworth\_66
- Track 12 : Wilkos\_68
- Track 13 : CoffeeBean\_68, Maselop\_67, Braxoaddie\_67
- Track 14 : GuyFagieri\_66
- Track 15 : MacGully\_76
- Track 16 : Apiary\_67, Polyuyuki\_67
- Track 17 : GTE5\_55
- Track 18 : Flapper\_69
- Track 19 : GRU1\_55, Dalilpop\_70
- Track 20 : Turuncu\_69
- Track 21 : Phomeo\_67, Jifall16\_66, Foxboro\_67, KidneyBean\_67
- Track 22 : Emianna\_66, NatB6\_66, Kurt\_66, GrootJr\_68, NovumRegina\_66
- Track 23 : Outis\_67, StarStruck\_67
- Track 24 : Kabluna\_69, Bonum\_70
- Track 25 : Commandaria\_67
- Track 26 : NosilaM\_69
- Track 27 : Buggaboo\_68, SuperSulley\_68
- Track 28 : GTE8\_55
- Track 29 : MerCougar\_69
- Track 30 : Wheezy\_66
- Track 31 : Tracker\_66
- Track 32 : Arti\_65
- Track 33 : Float294\_67, Skysand\_68
- Track 34 : Lollipop1437\_70, Ennea\_73
- Track 35 : Patio\_68
- Track 36 : IDyn\_65
- Track 37 : WhoseManz\_67, Marietta\_68

- Track 38 : Yndexa\_67, Sukkupi\_67
- Track 39 : HubbaBubba\_62
- Track 40 : NadineRae\_67
- Track 41 : BiPauneto\_69
- Track 42 : Pleakley\_75, Fury\_75
- Track 43 : Troll4\_57, BigMama\_55, Chill\_59, Giuseppe\_58, Erk16\_56, Mopey\_58, Adjutor\_56, PBI1\_54, Visconti\_58, Thoth\_57, Delton\_58, WaldoWhy\_59, Butterscotch\_56
- Track 44 : Helpful\_60, Penelope2018\_57, PLOT\_57
- Track 45 : Gumball\_57, SirHarley\_59
- Track 46 : KandZ\_56
- Track 47 : Nova\_56
- Track 48 : Prager\_57
- Track 49 : Hawkeye\_60
- Track 50 : GretelLyn\_65, Yikes\_67, Sadboi\_66
- Track 51 : Gibbin\_67, Patos\_69, BirthdayBoy\_67, NorManre\_69, Lambo\_63, OtterstedtS21\_65
- Track 52 : LuckyLeo\_62, Apeppi\_59
- Track 53 : Genamy16\_68, NovaSharks\_67, Alyssamiracle\_68, Avian\_64, Rumi\_66
- Track 54 : DoobyDoo\_63, Erutan\_65, Zany\_63, Jalebi\_64, MoiGyank\_71, Sampudon\_65
- Track 55 : GOATification\_65, Fulcrum\_65
- Track 56 : Tillicus\_61
- Track 57 : DumpTruck\_64
- Track 58 : Ranch\_65
- Track 59 : Lila22\_69
- Track 60 : Xenia2\_63
- Track 61 : Wojtek\_61
- Track 62 : Penjamin420\_66
- Track 63 : ParvusTarda\_64
- Track 64 : Karate\_42
- Track 65 : DannyDe\_43, Hiddenleaf\_43, Chivey\_43, FreddieHg\_43
- Track 66 : TinyMiny\_46, Ajin\_47, Kors\_47
- Track 67 : Snakehole\_43
- Track 68 : Erudite\_42, MortySmith\_41, JingleBells\_43, Dauntless\_43
- Track 69 : Rie18\_43
- Track 70 : Kate\_44, Cybele\_43, Gilda\_43, CoolCookie\_48, Krampus\_43, Neptune\_43, Potty\_43, PhunaPhoke\_43, OverHedge\_44
- Track 71 : Pharpay\_43, AnnaSerena\_43, NarutoRun\_43, Anakin\_43
- Track 72 : JDawG\_42, Aesir\_42
- Track 73 : RikSengupta\_46
- Track 74 : Crestdrop\_44
- Track 75 : Tedro\_43
- Track 76 : Rachella\_43
- Track 77 : Poultruss\_43
- Track 78 : Haunter\_43
- Track 79 : Hager\_44
- Track 80 : Sparcetus\_46
- Track 81 : Stickynote\_69, Darwin\_70
- Track 82 : Zion\_69, PeteyPab\_68, PotatoChip\_69
- Track 83 : C3PO\_69, Cruella\_69
- Track 84 : Kimchi1738\_70
- Track 85 : Cborch11\_69

- Track 86 : Konstantine\_71
- Track 87 : Megatron06\_70
- Track 88 : Thumb\_68, Phreeze\_66
- Track 89 : Puissant\_69
- Track 90 : Damien\_67, Beckerton\_66
- Track 91 : Predator\_68
- Track 92 : Oaker\_67
- Track 93 : DrLupo\_75
- Track 94 : Barnyard\_72
- Track 95 : Nilo\_71, Riparian\_71, Papyrus\_69, Rope\_69, Weiss13\_69, Candle\_67
- Track 96 : Zenon\_71, Send513\_69
- Track 97 : MontyDev\_69
- Track 98 : Yelo\_68
- Track 99 : Patience\_81, Labelle\_80
- Track 100 : Madruga\_79
- Track 101 : ChewyVIII\_80
- Track 102 : Wollypog\_46
- Track 103 : P1201\_73

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

The start number called the most often in the published annotations is 37, it was called in 44 of the 162 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Adjutor\_56, Aikoy\_74, Apiary\_67, Arti\_65, Barnyard\_72, BigMama\_55, Braxoaddie\_67, Bitterscotch\_56, Chill\_59, CoffeeBean\_68, Commandaria\_67, Cuke\_76, Delton\_58, DrLupo\_75, Emianna\_66, Erk16\_56, Fowlmouth\_77, Foxboro\_67, GTE8\_55, Giuseppe\_58, GrootJr\_68, GuyFagieri\_66, Hawkeye\_60, Helpful\_60, Jifall16\_66, KidneyBean\_67, Kurt\_66, Leopard\_73, MacGully\_76, Maselop\_67, Mopey\_58, MrMiyagi\_76, NatB6\_66, Nova\_56, NovumRegina\_66, Onyinye\_74, PBI1\_54, PLOT\_57, Penelope2018\_57, Phomeo\_67, Polyuyuki\_67, Thoth\_57, Tracker\_66, Troll4\_57, Visconti\_58, WaldoWhy\_59, Wheezy\_66,

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

- Gumball\_57, KandZ\_56, Prager\_57, SirHarley\_59,

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

- Aesir\_42, Ajin\_47, Alyssamiracle\_68, Anakin\_43, AnnaSerena\_43, Apeppi\_59, Avian\_64, Beckerton\_66, BiPauneto\_69, BirthdayBoy\_67, Bonum\_70, Buggaboo\_68, C3PO\_69, Candle\_67, Cborch11\_69, ChewyVIII\_80, Chivey\_43, CoolCookie\_48, Crestdrop\_44, Cruella\_69, Cybele\_43, Dalilpop\_70, Damien\_67, DannyDe\_43, Darwin\_70, Dauntless\_43, DoobyDoo\_63, Dryad\_70, DumpTruck\_64, Ennea\_73, Erudite\_42, Erutan\_65, Flapper\_69, Float294\_67, FreddieHg\_43, Fulcrum\_65, Fury\_75, GOATification\_65, GRU1\_55, GTE5\_55, Genamy16\_68, Gibbin\_67, Gibson\_66, Gilda\_43, GretelLyn\_65, Hager\_44, Haunter\_43, Hiddenleaf\_43, HubbaBubba\_62, IDyn\_65, Indlulamithi\_68, JDawG\_42, Jalebi\_64, JingleBells\_43, Kabluna\_69, Karate\_42, Kate\_44, Kimchi1738\_70, Konstantine\_71, Kors\_47, Krampus\_43, Labelle\_80, Lambo\_63, Lila22\_69, Lizz\_66, Lollipop1437\_70, LuckyLeo\_62, Madruga\_79, Marietta\_68, Megatron06\_70, MerCougar\_69,

MoiGyank\_71, MontyDev\_69, MortySmith\_41, NadineRae\_67, NarutoRun\_43, Neptune\_43, Nilo\_71, NorManre\_69, NosilaM\_69, NovaSharks\_67, Oaker\_67, OtterstedtS21\_65, Outis\_67, OverHedge\_44, P1201\_73, PHTowN\_66, Papyrus\_69, ParvusTarda\_64, Patience\_81, Patio\_68, Patos\_69, Penjamin420\_66, PeteyPab\_68, Pharpay\_43, Phreeze\_66, PhunaPhoke\_43, Pleakley\_75, PotatoChip\_69, Potty\_43, Poultruss\_43, Predator\_68, Puissant\_69, Rachella\_43, Ranch\_65, Rie18\_43, RikSengupta\_46, Riparian\_71, Rooney\_66, Rope\_69, Rumi\_66, Sadboi\_66, Sampudon\_65, Send513\_69, ShakeNBake\_66, Skysand\_68, Snakehole\_43, Sparcetus\_46, StarStruck\_67, Stickynote\_69, Sukkupi\_67, SuperSulley\_68, Tedro\_43, Thumb\_68, Tillicus\_61, TinyMiny\_46, Turuncu\_69, Weiss13\_69, Wentworth\_66, WhoseManz\_67, Wilkos\_68, Wojtek\_61, Wollypog\_46, Xenia2\_63, Yara\_62, Yelo\_68, Yikes\_67, Yndexa\_67, Zany\_63, Zenon\_71, Zion\_69,

### Summary by start number:

#### Start 17:

- Found in 4 of 192 ( 2.1% ) of genes in pham
- Manual Annotations of this start: 1 of 162
- Called 25.0% of time when present
- Phage (with cluster) where this start called: RikSengupta\_46 (EF),

#### Start 22:

- Found in 10 of 192 ( 5.2% ) of genes in pham
- Manual Annotations of this start: 1 of 162
- Called 10.0% of time when present
- Phage (with cluster) where this start called: Predator\_68 (H1),

#### Start 25:

- Found in 1 of 192 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 162
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ChewyVIII\_80 (singleton),

#### Start 26:

- Found in 9 of 192 ( 4.7% ) of genes in pham
- Manual Annotations of this start: 7 of 162
- Called 77.8% of time when present
- Phage (with cluster) where this start called: Beckerton\_66 (H1), Cborch11\_69 (H1), Damien\_67 (H1), Konstantine\_71 (H1), Oaker\_67 (H1), Phreeze\_66 (H1), Thumb\_68 (H1),

#### Start 27:

- Found in 1 of 192 ( 0.5% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Puissant\_69 (H1),

#### Start 31:

- Found in 3 of 192 ( 1.6% ) of genes in pham
- Manual Annotations of this start: 2 of 162
- Called 66.7% of time when present
- Phage (with cluster) where this start called: Ennea\_73 (CR3), Lollipop1437\_70 (CR3),

Start 33:

- Found in 3 of 192 ( 1.6% ) of genes in pham
- Manual Annotations of this start: 3 of 162
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Labelle\_80 (U), Madruga\_79 (U), Patience\_81 (U),

Start 34:

- Found in 3 of 192 ( 1.6% ) of genes in pham
- Manual Annotations of this start: 1 of 162
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Patio\_68 (CR3),

Start 35:

- Found in 2 of 192 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 2 of 162
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Fury\_75 (CR5), Pleakley\_75 (CR5),

Start 37:

- Found in 51 of 192 ( 26.6% ) of genes in pham
- Manual Annotations of this start: 44 of 162
- Called 92.2% of time when present
- Phage (with cluster) where this start called: Adjutor\_56 (D1), Aikoy\_74 (AE), Apiary\_67 (CR), Arti\_65 (CR2), Barnyard\_72 (H2), BigMama\_55 (D1), Braxoaddie\_67 (CR), Butterscotch\_56 (D1), Chill\_59 (D1), CoffeeBean\_68 (CR), Commandaria\_67 (CR2), Cuke\_76 (AC), Delton\_58 (D1), DrLupo\_75 (H2), Emianna\_66 (CR2), Erk16\_56 (D1), Fowlmouth\_77 (AC), Foxboro\_67 (CR2), GTE8\_55 (CR2), Giuseppe\_58 (D1), GrootJr\_68 (CR2), GuyFagieri\_66 (CR), Hawkeye\_60 (D2), Helpful\_60 (D1), Jifall16\_66 (CR2), KidneyBean\_67 (CR2), Kurt\_66 (CR2), Leopard\_73 (AE), MacGully\_76 (CR), Maselop\_67 (CR), Mopey\_58 (D1), MrMiyagi\_76 (AC), NatB6\_66 (CR2), Nova\_56 (D1), NovumRegina\_66 (CR2), Onyinye\_74 (AE), PBI1\_54 (D1), PLOT\_57 (D1), Penelope2018\_57 (D1), Phomeo\_67 (CR2), Polyuyuki\_67 (CR), Thoth\_57 (D1), Tracker\_66 (CR2), Troll4\_57 (D1), Visconti\_58 (D1), WaldoWhy\_59 (D1), Wheezy\_66 (CR2),

Start 38:

- Found in 4 of 192 ( 2.1% ) of genes in pham
- Manual Annotations of this start: 2 of 162
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Dalilpop\_70 (CR1), Flapper\_69 (CR1), GRU1\_55 (CR1), P1201\_73 (singleton),

Start 39:

- Found in 47 of 192 ( 24.5% ) of genes in pham
- Manual Annotations of this start: 38 of 162
- Called 97.9% of time when present
- Phage (with cluster) where this start called: Aesir\_42 (EF), Anakin\_43 (EF), AnnaSerena\_43 (EF), BiPauneto\_69 (CR4), Bonum\_70 (CR2), Buggaboo\_68 (CR2), Chivey\_43 (EF), CoolCookie\_48 (EF), Crestdrop\_44 (EF), Cybele\_43 (EF), DannyDe\_43 (EF), Dauntless\_43 (EF), Erudite\_42 (EF), FreddieHg\_43 (EF), Gilda\_43 (EF), Hager\_44 (EF), Haunter\_43 (EF), Hiddenleaf\_43 (EF), IDyn\_65



(CR4), JDawG\_42 (EF), JingleBells\_43 (EF), Kabluna\_69 (CR2), Karate\_42 (EF), Kate\_44 (EF), Krampus\_43 (EF), Marietta\_68 (CR4), MerCougar\_69 (CR2), MortySmith\_41 (EF), NadineRae\_67 (CR4), NarutoRun\_43 (EF), Neptune\_43 (EF), NosilaM\_69 (CR2), Outis\_67 (CR2), OverHedge\_44 (EF), Pharpay\_43 (EF), PhunaPhoke\_43 (EF), Potty\_43 (EF), Poultruss\_43 (EF), Rie18\_43 (EF), Snakehole\_43 (EF), StarStruck\_67 (CR2), Sukkupi\_67 (CR4), SuperSulley\_68 (CR2), Tedro\_43 (EF), WhoseManz\_67 (CR4), Yndexa\_67 (CR4),

#### Start 40:

- Found in 46 of 192 ( 24.0% ) of genes in pham
- Manual Annotations of this start: 34 of 162
- Called 91.3% of time when present
- Phage (with cluster) where this start called: Alyssamiracle\_68 (DV), Apeppi\_59 (DV), Avian\_64 (DV), BirthdayBoy\_67 (DV), Candle\_67 (R), DoobyDoo\_63 (DV), DumpTruck\_64 (DV), Erutan\_65 (DV), Fulcrum\_65 (DV), GOATification\_65 (DV), Genamy16\_68 (DV), Gibbin\_67 (DV), GretelLyn\_65 (DV), Indlulamithi\_68 (AC), Jalebi\_64 (DV), Lambo\_63 (DV), Lila22\_69 (DV), LuckyLeo\_62 (DV), MoiGyank\_71 (DV), MontyDev\_69 (R), Nilo\_71 (R), NorManre\_69 (DV), NovaSharks\_67 (DV), OtterstedtS21\_65 (DV), Papyrus\_69 (R), ParvusTarda\_64 (DV), Patos\_69 (DV), Ranch\_65 (DV), Riparian\_71 (R), Rope\_69 (R), Rumi\_66 (DV), Sadboi\_66 (DV), Sampudon\_65 (DV), Send513\_69 (R), Tillicus\_61 (DV), Weiss13\_69 (R), Wojtek\_61 (DV), Xenia2\_63 (DV), Yelo\_68 (R), Yikes\_67 (DV), Zany\_63 (DV), Zenon\_71 (R),

#### Start 41:

- Found in 8 of 192 ( 4.2% ) of genes in pham
- Manual Annotations of this start: 7 of 162
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Dryad\_70 (BN), Gibson\_66 (BN), Lizz\_66 (BN), PHTowN\_66 (BN), Rooney\_66 (BN), ShakeNBake\_66 (BN), Wentworth\_66 (BN), Wilkos\_68 (BN),

#### Start 42:

- Found in 5 of 192 ( 2.6% ) of genes in pham
- Manual Annotations of this start: 2 of 162
- Called 80.0% of time when present
- Phage (with cluster) where this start called: Ajin\_47 (EF), Kors\_47 (EF), Sparcetus\_46 (EF), TinyMiny\_46 (EF),

#### Start 43:

- Found in 10 of 192 ( 5.2% ) of genes in pham
- Manual Annotations of this start: 10 of 162
- Called 100.0% of time when present
- Phage (with cluster) where this start called: C3PO\_69 (EN), Cruella\_69 (EN), Darwin\_70 (EN), Kimchi1738\_70 (EN), PeteyPab\_68 (EN), PotatoChip\_69 (EN), Stickynote\_69 (EN), Wollypog\_46 (singleton), Yara\_62 (BN), Zion\_69 (EN),

#### Start 45:

- Found in 60 of 192 ( 31.2% ) of genes in pham
- No Manual Annotations of this start.
- Called 1.7% of time when present
- Phage (with cluster) where this start called: Penjamin420\_66 (DV),

#### Start 46:

- Found in 41 of 192 ( 21.4% ) of genes in pham
- Manual Annotations of this start: 1 of 162
- Called 2.4% of time when present
- Phage (with cluster) where this start called: Rachella\_43 (EF),

Start 47:

- Found in 2 of 192 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 2 of 162
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Float294\_67 (CR3), Skysand\_68 (CR3),

Start 49:

- Found in 21 of 192 ( 10.9% ) of genes in pham
- Manual Annotations of this start: 3 of 162
- Called 19.0% of time when present
- Phage (with cluster) where this start called: Gumball\_57 (D1), KandZ\_56 (D1), Prager\_57 (D1), SirHarley\_59 (D1),

Start 55:

- Found in 10 of 192 ( 5.2% ) of genes in pham
- No Manual Annotations of this start.
- Called 10.0% of time when present
- Phage (with cluster) where this start called: Megatron06\_70 (H1),

Start 72:

- Found in 18 of 192 ( 9.4% ) of genes in pham
- No Manual Annotations of this start.
- Called 5.6% of time when present
- Phage (with cluster) where this start called: HubbaBubba\_62 (CR4),

Start 73:

- Found in 9 of 192 ( 4.7% ) of genes in pham
- Manual Annotations of this start: 1 of 162
- Called 22.2% of time when present
- Phage (with cluster) where this start called: GTE5\_55 (CR1), Turuncu\_69 (CR1),

### **Summary by clusters:**

There are 19 clusters represented in this pham: CR2, CR3, AC, H1, AE, CR4, CR1, H2, BN, EF, singleton, R, U, EN, DV, CR, D2, CR5, D1,

Info for manual annotations of cluster AC:

- Start number 37 was manually annotated 3 times for cluster AC.
- Start number 40 was manually annotated 1 time for cluster AC.

Info for manual annotations of cluster AE:

- Start number 37 was manually annotated 3 times for cluster AE.

Info for manual annotations of cluster BN:

- Start number 41 was manually annotated 7 times for cluster BN.
- Start number 43 was manually annotated 1 time for cluster BN.

Info for manual annotations of cluster CR:

- Start number 37 was manually annotated 6 times for cluster CR.

Info for manual annotations of cluster CR1:

- Start number 38 was manually annotated 2 times for cluster CR1.
- Start number 73 was manually annotated 1 time for cluster CR1.

Info for manual annotations of cluster CR2:

- Start number 37 was manually annotated 12 times for cluster CR2.
- Start number 39 was manually annotated 8 times for cluster CR2.

Info for manual annotations of cluster CR3:

- Start number 31 was manually annotated 2 times for cluster CR3.
- Start number 34 was manually annotated 1 time for cluster CR3.
- Start number 47 was manually annotated 2 times for cluster CR3.

Info for manual annotations of cluster CR4:

- Start number 39 was manually annotated 7 times for cluster CR4.

Info for manual annotations of cluster CR5:

- Start number 35 was manually annotated 2 times for cluster CR5.

Info for manual annotations of cluster D1:

- Start number 37 was manually annotated 17 times for cluster D1.
- Start number 49 was manually annotated 3 times for cluster D1.

Info for manual annotations of cluster D2:

- Start number 37 was manually annotated 1 time for cluster D2.

Info for manual annotations of cluster DV:

- Start number 40 was manually annotated 25 times for cluster DV.

Info for manual annotations of cluster EF:

- Start number 17 was manually annotated 1 time for cluster EF.
- Start number 39 was manually annotated 23 times for cluster EF.
- Start number 42 was manually annotated 2 times for cluster EF.
- Start number 46 was manually annotated 1 time for cluster EF.

Info for manual annotations of cluster EN:

- Start number 43 was manually annotated 8 times for cluster EN.

Info for manual annotations of cluster H1:

- Start number 22 was manually annotated 1 time for cluster H1.
- Start number 26 was manually annotated 7 times for cluster H1.

Info for manual annotations of cluster H2:

- Start number 37 was manually annotated 2 times for cluster H2.

Info for manual annotations of cluster R:

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

Info for manual annotations of cluster U:

- Start number 33 was manually annotated 3 times for cluster U.

**Gene Information:**

Gene: Adjutor\_56 Start: 43047, Stop: 44225, Start Num: 37

Candidate Starts for Adjutor\_56:

(5, 42765), (6, 42795), (10, 42858), (Start: 37 @43047 has 44 MA's), (Start: 49 @43095 has 3 MA's), (54, 43134), (57, 43146), (69, 43245), (81, 43308), (92, 43362), (100, 43410), (114, 43476), (143, 43590), (145, 43617), (150, 43647), (159, 43692), (208, 43926), (217, 43992), (220, 44001), (222, 44010), (238, 44136), (251, 44217),

Gene: Aesir\_42 Start: 28494, Stop: 29621, Start Num: 39

Candidate Starts for Aesir\_42:

(1, 28101), (4, 28182), (Start: 39 @28494 has 38 MA's), (Start: 46 @28515 has 1 MA's), (77, 28725), (92, 28788), (108, 28884), (134, 28989), (159, 29139), (199, 29307), (211, 29373), (228, 29514), (236, 29571),

Gene: Aikoy\_74 Start: 50610, Stop: 51827, Start Num: 37

Candidate Starts for Aikoy\_74:

(Start: 37 @50610 has 44 MA's), (Start: 46 @50637 has 1 MA's), (52, 50691), (58, 50736), (66, 50802), (67, 50814), (75, 50874), (82, 50904), (83, 50907), (90, 50934), (95, 50961), (120, 51090), (140, 51210), (142, 51216), (156, 51306), (162, 51348), (165, 51366), (167, 51384), (193, 51447), (208, 51531), (220, 51606), (221, 51612), (222, 51615), (228, 51684), (230, 51693), (237, 51738), (245, 51795),

Gene: Ajin\_47 Start: 29709, Stop: 30806, Start Num: 42

Candidate Starts for Ajin\_47:

(Start: 17 @29655 has 1 MA's), (Start: 42 @29709 has 2 MA's), (44, 29712), (Start: 46 @29718 has 1 MA's), (77, 29928), (78, 29934), (90, 29979), (92, 29991), (103, 30054), (108, 30087), (134, 30192), (161, 30354), (199, 30489), (206, 30513), (230, 30705), (236, 30753),

Gene: Alyssamiracle\_68 Start: 43081, Stop: 44298, Start Num: 40

Candidate Starts for Alyssamiracle\_68:

(Start: 40 @43081 has 34 MA's), (45, 43096), (64, 43225), (75, 43315), (76, 43318), (84, 43354), (92, 43387), (120, 43501), (127, 43528), (134, 43567), (137, 43582), (142, 43612), (145, 43642), (150, 43672), (160, 43720), (192, 43909), (217, 44065), (220, 44074), (222, 44083), (225, 44107), (230, 44161), (235, 44200), (251, 44290),

Gene: Anakin\_43 Start: 28820, Stop: 29974, Start Num: 39

Candidate Starts for Anakin\_43:

(1, 28421), (Start: 39 @28820 has 38 MA's), (Start: 46 @28841 has 1 MA's), (56, 28910), (77, 29051), (92, 29114), (108, 29210), (134, 29315), (159, 29465), (170, 29555), (181, 29591), (192, 29621), (211, 29726), (218, 29783), (228, 29867), (236, 29924),

Gene: AnnaSerena\_43 Start: 28855, Stop: 30009, Start Num: 39

Candidate Starts for AnnaSerena\_43:

(1, 28456), (Start: 39 @28855 has 38 MA's), (Start: 46 @28876 has 1 MA's), (56, 28945), (77, 29086), (92, 29149), (108, 29245), (134, 29350), (159, 29500), (170, 29590), (181, 29626), (192, 29656), (211, 29761), (218, 29818), (228, 29902), (236, 29959),

Gene: Apeppi\_59 Start: 43297, Stop: 44457, Start Num: 40

Candidate Starts for Apeppi\_59:

(Start: 40 @43297 has 34 MA's), (45, 43312), (64, 43441), (75, 43531), (87, 43576), (92, 43603), (127, 43744), (137, 43795), (142, 43825), (145, 43855), (160, 43933), (167, 43993), (168, 44008), (177, 44029), (192, 44068), (193, 44074), (212, 44176), (217, 44224), (220, 44233), (225, 44266), (235, 44359), (251, 44449),

Gene: Apiary\_67 Start: 50069, Stop: 48903, Start Num: 37

Candidate Starts for Apiary\_67:

(11, 50207), (18, 50099), (Start: 37 @50069 has 44 MA's), (70, 49871), (92, 49748), (104, 49673), (127, 49610), (132, 49583), (146, 49490), (149, 49475), (152, 49451), (159, 49424), (160, 49421), (203, 49211), (209, 49163), (220, 49094), (221, 49088), (236, 48962),

Gene: Arti\_65 Start: 52065, Stop: 50866, Start Num: 37

Candidate Starts for Arti\_65:

(Start: 37 @52065 has 44 MA's), (86, 51777), (87, 51774), (91, 51753), (92, 51747), (145, 51474), (147, 51462), (150, 51444), (157, 51411), (160, 51396), (170, 51309), (192, 51222), (201, 51180), (202, 51177), (211, 51120), (218, 51063), (219, 51060), (220, 51057), (222, 51048), (233, 50940), (239, 50916),

Gene: Avian\_64 Start: 42809, Stop: 44026, Start Num: 40

Candidate Starts for Avian\_64:

(Start: 40 @42809 has 34 MA's), (45, 42824), (64, 42953), (75, 43043), (76, 43046), (84, 43082), (92, 43115), (120, 43229), (127, 43256), (134, 43295), (137, 43310), (142, 43340), (145, 43370), (150, 43400), (160, 43448), (192, 43637), (217, 43793), (220, 43802), (222, 43811), (225, 43835), (230, 43889), (235, 43928), (251, 44018),

Gene: Barnyard\_72 Start: 49524, Stop: 50783, Start Num: 37

Candidate Starts for Barnyard\_72:

(19, 49479), (21, 49482), (23, 49488), (Start: 37 @49524 has 44 MA's), (Start: 46 @49542 has 1 MA's), (57, 49614), (64, 49668), (90, 49833), (92, 49845), (100, 49899), (101, 49905), (124, 50010), (128, 50028), (136, 50073), (150, 50181), (169, 50316), (171, 50325), (182, 50358), (185, 50364), (187, 50370), (203, 50442), (220, 50559), (247, 50751), (251, 50775),

Gene: Beckerton\_66 Start: 50602, Stop: 51891, Start Num: 26

Candidate Starts for Beckerton\_66:

(14, 50563), (Start: 22 @50587 has 1 MA's), (Start: 26 @50602 has 7 MA's), (55, 50716), (58, 50734), (63, 50776), (91, 50950), (92, 50956), (100, 51007), (124, 51121), (128, 51139), (129, 51142), (131, 51157), (136, 51178), (154, 51310), (156, 51316), (184, 51454), (197, 51499), (203, 51517), (211, 51571), (219, 51631), (225, 51667), (236, 51763),

Gene: BiPauneto\_69 Start: 51654, Stop: 50455, Start Num: 39

Candidate Starts for BiPauneto\_69:

(Start: 39 @51654 has 38 MA's), (72, 51435), (79, 51411), (85, 51375), (86, 51372), (87, 51369), (92, 51342), (96, 51324), (104, 51267), (145, 51069), (147, 51057), (160, 50991), (163, 50964), (170, 50904), (192, 50811), (195, 50796), (202, 50766), (203, 50763), (206, 50751), (211, 50709), (220, 50646), (222, 50637), (232, 50535), (233, 50529), (239, 50505),

Gene: BigMama\_55 Start: 43123, Stop: 44301, Start Num: 37

Candidate Starts for BigMama\_55:

(5, 42841), (6, 42871), (10, 42934), (Start: 37 @43123 has 44 MA's), (Start: 49 @43171 has 3 MA's), (54, 43210), (57, 43222), (69, 43321), (81, 43384), (92, 43438), (100, 43486), (114, 43552), (143, 43666), (145, 43693), (150, 43723), (159, 43768), (208, 44002), (217, 44068), (220, 44077), (222, 44086), (238, 44212), (251, 44293),

Gene: BirthdayBoy\_67 Start: 44385, Stop: 45602, Start Num: 40

Candidate Starts for BirthdayBoy\_67:

(Start: 40 @44385 has 34 MA's), (45, 44400), (64, 44529), (75, 44619), (76, 44622), (84, 44658), (92, 44691), (120, 44805), (127, 44832), (134, 44871), (137, 44886), (142, 44916), (145, 44946), (150, 44976), (160, 45024), (211, 45315), (217, 45369), (220, 45378), (222, 45387), (225, 45411), (235, 45504), (251, 45594),

Gene: Bonum\_70 Start: 52948, Stop: 51740, Start Num: 39

Candidate Starts for Bonum\_70:

(Start: 39 @52948 has 38 MA's), (72, 52726), (79, 52702), (81, 52687), (86, 52663), (87, 52660), (92, 52633), (104, 52558), (132, 52441), (147, 52345), (160, 52279), (174, 52168), (188, 52120), (192, 52099), (201, 52057), (206, 52039), (211, 51997), (217, 51943), (220, 51934), (222, 51925), (233, 51817),

Gene: Braxoaddie\_67 Start: 50055, Stop: 48892, Start Num: 37

Candidate Starts for Braxoaddie\_67:

(11, 50193), (18, 50085), (Start: 37 @50055 has 44 MA's), (70, 49857), (92, 49734), (94, 49722), (127, 49596), (132, 49569), (160, 49407), (186, 49263), (197, 49224), (203, 49200), (220, 49083), (221, 49077), (236, 48951),

Gene: Buggaboo\_68 Start: 53499, Stop: 52291, Start Num: 39

Candidate Starts for Buggaboo\_68:

(Start: 39 @53499 has 38 MA's), (72, 53277), (79, 53253), (86, 53214), (87, 53211), (92, 53184), (96, 53166), (104, 53109), (147, 52896), (160, 52830), (174, 52719), (188, 52671), (206, 52590), (211, 52548), (217, 52494), (220, 52485), (222, 52476), (233, 52368),

Gene: Butterscotch\_56 Start: 43107, Stop: 44285, Start Num: 37

Candidate Starts for Butterscotch\_56:

(5, 42825), (6, 42855), (10, 42918), (Start: 37 @43107 has 44 MA's), (Start: 49 @43155 has 3 MA's), (54, 43194), (57, 43206), (69, 43305), (81, 43368), (92, 43422), (100, 43470), (114, 43536), (143, 43650), (145, 43677), (150, 43707), (159, 43752), (208, 43986), (217, 44052), (220, 44061), (222, 44070), (238, 44196), (251, 44277),

Gene: C3PO\_69 Start: 50533, Stop: 49421, Start Num: 43

Candidate Starts for C3PO\_69:

(Start: 43 @50533 has 10 MA's), (63, 50398), (70, 50347), (81, 50284), (92, 50233), (99, 50191), (104, 50158), (122, 50095), (124, 50086), (127, 50077), (134, 50041), (142, 49987), (168, 49804), (216, 49615), (220, 49594), (224, 49564), (231, 49492), (234, 49477), (235, 49468),

Gene: Candle\_67 Start: 51720, Stop: 52889, Start Num: 40

Candidate Starts for Candle\_67:

(Start: 40 @51720 has 34 MA's), (45, 51735), (51, 51777), (57, 51810), (89, 52011), (92, 52026), (120, 52158), (134, 52221), (137, 52236), (150, 52326), (155, 52353), (199, 52554), (201, 52560), (203, 52566), (218, 52677), (220, 52683), (236, 52815), (246, 52875),

Gene: Cborch11\_69 Start: 50121, Stop: 51410, Start Num: 26

Candidate Starts for Cborch11\_69:

(14, 50082), (Start: 22 @50106 has 1 MA's), (Start: 26 @50121 has 7 MA's), (55, 50235), (57, 50244), (58, 50253), (63, 50295), (91, 50469), (92, 50475), (100, 50526), (124, 50640), (128, 50658), (129, 50661), (131, 50676), (136, 50697), (154, 50829), (156, 50835), (197, 51018), (203, 51036), (207, 51072), (211, 51090), (219, 51150), (225, 51186), (236, 51282),

Gene: ChewyVIII\_80 Start: 59181, Stop: 57982, Start Num: 25

Candidate Starts for ChewyVIII\_80:

(8, 59355), (Start: 25 @59181 has 1 MA's), (36, 59148), (53, 59064), (87, 58863), (91, 58842), (92, 58836), (94, 58824), (104, 58761), (123, 58707), (127, 58695), (133, 58662), (142, 58614), (169, 58422), (195, 58314), (196, 58308), (211, 58227), (226, 58095), (227, 58089), (228, 58086), (243, 57990),

Gene: Chill\_59 Start: 43170, Stop: 44348, Start Num: 37

Candidate Starts for Chill\_59:

(5, 42888), (6, 42918), (10, 42981), (Start: 37 @43170 has 44 MA's), (Start: 49 @43218 has 3 MA's), (54, 43257), (57, 43269), (69, 43368), (81, 43431), (92, 43485), (100, 43533), (114, 43599), (143, 43713), (145, 43740), (150, 43770), (159, 43815), (208, 44049), (217, 44115), (220, 44124), (222, 44133), (238, 44259), (251, 44340),

Gene: Chivey\_43 Start: 28072, Stop: 29199, Start Num: 39

Candidate Starts for Chivey\_43:

(1, 27679), (3, 27745), (4, 27760), (Start: 39 @28072 has 38 MA's), (Start: 46 @28093 has 1 MA's), (61, 28189), (77, 28303), (92, 28366), (108, 28462), (134, 28567), (159, 28717), (199, 28885), (211, 28951), (218, 29008), (228, 29092), (236, 29149),

Gene: CoffeeBean\_68 Start: 50013, Stop: 48850, Start Num: 37

Candidate Starts for CoffeeBean\_68:

(11, 50151), (18, 50043), (Start: 37 @50013 has 44 MA's), (70, 49815), (92, 49692), (94, 49680), (127, 49554), (132, 49527), (160, 49365), (186, 49221), (197, 49182), (203, 49158), (220, 49041), (221, 49035), (236, 48909),

Gene: Commandaria\_67 Start: 53320, Stop: 52109, Start Num: 37

Candidate Starts for Commandaria\_67:

(Start: 37 @53320 has 44 MA's), (67, 53140), (72, 53092), (92, 52999), (113, 52876), (117, 52867), (145, 52726), (147, 52714), (160, 52648), (202, 52420), (206, 52405), (211, 52363), (217, 52309), (219, 52303), (220, 52300), (222, 52291), (223, 52276), (233, 52183), (239, 52159),

Gene: CoolCookie\_48 Start: 28850, Stop: 30004, Start Num: 39

Candidate Starts for CoolCookie\_48:

(1, 28451), (Start: 39 @28850 has 38 MA's), (Start: 46 @28871 has 1 MA's), (77, 29081), (92, 29144), (108, 29240), (134, 29345), (159, 29495), (170, 29585), (181, 29621), (192, 29651), (211, 29756), (218, 29813), (228, 29897), (236, 29954),

Gene: Crestdrop\_44 Start: 28106, Stop: 29230, Start Num: 39

Candidate Starts for Crestdrop\_44:

(1, 27713), (3, 27779), (4, 27794), (Start: 39 @28106 has 38 MA's), (Start: 46 @28127 has 1 MA's), (77, 28337), (92, 28400), (108, 28496), (134, 28601), (159, 28751), (192, 28880), (211, 28982), (228, 29123), (236, 29180),

Gene: Cruella\_69 Start: 50533, Stop: 49421, Start Num: 43

Candidate Starts for Cruella\_69:

(Start: 43 @50533 has 10 MA's), (63, 50398), (70, 50347), (81, 50284), (92, 50233), (99, 50191), (104, 50158), (122, 50095), (124, 50086), (127, 50077), (134, 50041), (142, 49987), (168, 49804), (216, 49615), (220, 49594), (224, 49564), (231, 49492), (234, 49477), (235, 49468),

Gene: Cuke\_76 Start: 45241, Stop: 46281, Start Num: 37

Candidate Starts for Cuke\_76:

(Start: 37 @45241 has 44 MA's), (Start: 40 @45250 has 34 MA's), (45, 45265), (48, 45286), (61, 45367), (Start: 73 @45475 has 1 MA's), (84, 45526), (93, 45565), (95, 45577), (102, 45619), (126,

45700), (137, 45757), (144, 45811), (150, 45847), (156, 45877), (205, 45961), (211, 46003), (220, 46066), (224, 46096), (235, 46195), (244, 46249),

Gene: Cybele\_43 Start: 28820, Stop: 29974, Start Num: 39

Candidate Starts for Cybele\_43:

(1, 28421), (Start: 39 @28820 has 38 MA's), (Start: 46 @28841 has 1 MA's), (77, 29051), (92, 29114), (108, 29210), (134, 29315), (159, 29465), (170, 29555), (181, 29591), (192, 29621), (211, 29726), (218, 29783), (228, 29867), (236, 29924),

Gene: Dalilpop\_70 Start: 54174, Stop: 52993, Start Num: 38

Candidate Starts for Dalilpop\_70:

(Start: 38 @54174 has 2 MA's), (Start: 73 @53949 has 1 MA's), (80, 53925), (86, 53889), (92, 53859), (100, 53811), (117, 53748), (150, 53577), (160, 53529), (168, 53454), (170, 53442), (188, 53370), (203, 53301), (220, 53184), (222, 53175), (223, 53160), (239, 53043),

Gene: Damien\_67 Start: 50083, Stop: 51372, Start Num: 26

Candidate Starts for Damien\_67:

(14, 50044), (Start: 22 @50068 has 1 MA's), (Start: 26 @50083 has 7 MA's), (55, 50197), (58, 50215), (63, 50257), (91, 50431), (92, 50437), (100, 50488), (124, 50602), (128, 50620), (129, 50623), (131, 50638), (136, 50659), (154, 50791), (156, 50797), (184, 50935), (197, 50980), (203, 50998), (211, 51052), (219, 51112), (225, 51148), (236, 51244),

Gene: DannyDe\_43 Start: 28078, Stop: 29205, Start Num: 39

Candidate Starts for DannyDe\_43:

(1, 27685), (3, 27751), (4, 27766), (Start: 39 @28078 has 38 MA's), (Start: 46 @28099 has 1 MA's), (61, 28195), (77, 28309), (92, 28372), (108, 28468), (134, 28573), (159, 28723), (199, 28891), (211, 28957), (218, 29014), (228, 29098), (236, 29155),

Gene: Darwin\_70 Start: 49774, Stop: 48662, Start Num: 43

Candidate Starts for Darwin\_70:

(Start: 43 @49774 has 10 MA's), (70, 49588), (92, 49474), (99, 49432), (104, 49399), (122, 49336), (124, 49327), (127, 49318), (134, 49282), (142, 49228), (168, 49045), (216, 48856), (220, 48835), (224, 48805), (231, 48733), (234, 48718), (235, 48709),

Gene: Dauntless\_43 Start: 28400, Stop: 29557, Start Num: 39

Candidate Starts for Dauntless\_43:

(1, 28007), (4, 28088), (Start: 39 @28400 has 38 MA's), (Start: 46 @28421 has 1 MA's), (77, 28631), (92, 28694), (108, 28790), (134, 28895), (159, 29045), (198, 29237), (199, 29243), (211, 29309), (228, 29450), (236, 29507),

Gene: Delton\_58 Start: 43505, Stop: 44683, Start Num: 37

Candidate Starts for Delton\_58:

(5, 43223), (6, 43253), (10, 43316), (Start: 37 @43505 has 44 MA's), (Start: 49 @43553 has 3 MA's), (54, 43592), (57, 43604), (69, 43703), (81, 43766), (92, 43820), (100, 43868), (114, 43934), (143, 44048), (145, 44075), (150, 44105), (159, 44150), (208, 44384), (217, 44450), (220, 44459), (222, 44468), (238, 44594), (251, 44675),

Gene: DoobyDoo\_63 Start: 43023, Stop: 44186, Start Num: 40

Candidate Starts for DoobyDoo\_63:

(Start: 40 @43023 has 34 MA's), (45, 43038), (64, 43167), (75, 43257), (76, 43260), (84, 43296), (92, 43329), (120, 43443), (127, 43470), (134, 43509), (137, 43524), (142, 43554), (145, 43584), (150, 43614), (160, 43662), (192, 43797), (211, 43899), (217, 43953), (220, 43962), (222, 43971), (225, 43995), (235, 44088), (251, 44178),



Gene: DrLupo\_75 Start: 50706, Stop: 51980, Start Num: 37

Candidate Starts for DrLupo\_75:

(Start: 37 @50706 has 44 MA's), (45, 50730), (64, 50859), (90, 51027), (92, 51039), (100, 51093), (101, 51099), (107, 51132), (111, 51153), (116, 51177), (118, 51183), (128, 51228), (130, 51234), (134, 51267), (135, 51270), (136, 51273), (150, 51381), (169, 51516), (171, 51525), (185, 51564), (187, 51570), (194, 51600), (195, 51606), (203, 51639), (204, 51642), (211, 51693), (213, 51717), (215, 51726), (220, 51756), (236, 51885), (239, 51894), (247, 51948), (251, 51972),

Gene: Dryad\_70 Start: 48069, Stop: 47071, Start Num: 41

Candidate Starts for Dryad\_70:

(32, 48093), (Start: 41 @48069 has 7 MA's), (45, 48057), (56, 47985), (58, 47976), (92, 47778), (93, 47775), (129, 47619), (134, 47583), (145, 47508), (147, 47496), (159, 47433), (161, 47421), (206, 47364), (208, 47334), (214, 47292), (218, 47265), (220, 47259), (222, 47250), (228, 47178), (229, 47172),

Gene: DumpTruck\_64 Start: 42784, Stop: 43998, Start Num: 40

Candidate Starts for DumpTruck\_64:

(30, 42760), (Start: 40 @42784 has 34 MA's), (45, 42796), (75, 43015), (76, 43018), (87, 43060), (92, 43087), (95, 43102), (127, 43228), (137, 43282), (142, 43312), (145, 43342), (158, 43414), (171, 43513), (179, 43561), (183, 43576), (210, 43708), (217, 43765), (220, 43774), (222, 43783), (225, 43807), (235, 43900), (248, 43969), (251, 43990),

Gene: Emianna\_66 Start: 53297, Stop: 52098, Start Num: 37

Candidate Starts for Emianna\_66:

(Start: 37 @53297 has 44 MA's), (86, 53009), (87, 53006), (91, 52985), (92, 52979), (145, 52706), (147, 52694), (150, 52676), (157, 52643), (160, 52628), (170, 52541), (192, 52454), (195, 52439), (202, 52409), (203, 52406), (211, 52352), (218, 52295), (219, 52292), (220, 52289), (222, 52280), (233, 52172), (239, 52148),

Gene: Ennea\_73 Start: 54279, Stop: 53080, Start Num: 31

Candidate Starts for Ennea\_73:

(Start: 31 @54279 has 2 MA's), (Start: 34 @54270 has 1 MA's), (69, 54072), (85, 53979), (86, 53976), (87, 53973), (92, 53946), (96, 53928), (104, 53871), (147, 53676), (148, 53673), (150, 53658), (160, 53610), (176, 53496), (179, 53484), (192, 53436), (203, 53388), (211, 53334), (220, 53271), (222, 53262), (235, 53142),

Gene: Erk16\_56 Start: 43209, Stop: 44387, Start Num: 37

Candidate Starts for Erk16\_56:

(5, 42927), (6, 42957), (10, 43020), (Start: 37 @43209 has 44 MA's), (Start: 49 @43257 has 3 MA's), (54, 43296), (57, 43308), (69, 43407), (81, 43470), (92, 43524), (100, 43572), (114, 43638), (143, 43752), (145, 43779), (150, 43809), (159, 43854), (208, 44088), (217, 44154), (220, 44163), (222, 44172), (238, 44298), (251, 44379),

Gene: Erudite\_42 Start: 28400, Stop: 29557, Start Num: 39

Candidate Starts for Erudite\_42:

(1, 28007), (4, 28088), (Start: 39 @28400 has 38 MA's), (Start: 46 @28421 has 1 MA's), (77, 28631), (92, 28694), (108, 28790), (134, 28895), (159, 29045), (198, 29237), (199, 29243), (211, 29309), (228, 29450), (236, 29507),

Gene: Erutan\_65 Start: 43665, Stop: 44828, Start Num: 40

Candidate Starts for Erutan\_65:

(Start: 40 @43665 has 34 MA's), (45, 43680), (64, 43809), (75, 43899), (76, 43902), (84, 43938), (92, 43971), (120, 44085), (127, 44112), (134, 44151), (137, 44166), (142, 44196), (145, 44226), (150, 44256), (160, 44304), (192, 44439), (211, 44541), (217, 44595), (220, 44604), (222, 44613), (225, 44637), (235, 44730), (251, 44820),

Gene: Flapper\_69 Start: 53365, Stop: 52184, Start Num: 38

Candidate Starts for Flapper\_69:

(Start: 38 @53365 has 2 MA's), (Start: 73 @53140 has 1 MA's), (80, 53116), (86, 53080), (92, 53050), (100, 53002), (117, 52939), (150, 52768), (160, 52720), (170, 52633), (174, 52609), (188, 52561), (203, 52492), (220, 52375), (222, 52366), (223, 52351), (239, 52234),

Gene: Float294\_67 Start: 53958, Stop: 52795, Start Num: 47

Candidate Starts for Float294\_67:

(Start: 47 @53958 has 2 MA's), (69, 53787), (85, 53694), (86, 53691), (87, 53688), (92, 53661), (96, 53643), (104, 53586), (147, 53391), (148, 53388), (150, 53373), (160, 53325), (176, 53211), (179, 53199), (192, 53151), (203, 53103), (211, 53049), (220, 52986), (222, 52977), (235, 52857),

Gene: Fowlmouth\_77 Start: 47770, Stop: 48810, Start Num: 37

Candidate Starts for Fowlmouth\_77:

(24, 47731), (Start: 37 @47770 has 44 MA's), (Start: 40 @47779 has 34 MA's), (45, 47794), (48, 47815), (61, 47896), (Start: 73 @48004 has 1 MA's), (84, 48055), (93, 48094), (100, 48139), (102, 48148), (132, 48262), (137, 48286), (153, 48397), (205, 48490), (211, 48532), (220, 48595), (224, 48625), (235, 48724),

Gene: Foxboro\_67 Start: 53822, Stop: 52623, Start Num: 37

Candidate Starts for Foxboro\_67:

(Start: 37 @53822 has 44 MA's), (86, 53534), (87, 53531), (91, 53510), (92, 53504), (145, 53231), (147, 53219), (150, 53201), (157, 53168), (160, 53153), (170, 53066), (192, 52979), (195, 52964), (202, 52934), (203, 52931), (211, 52877), (218, 52820), (219, 52817), (220, 52814), (222, 52805), (233, 52697), (239, 52673),

Gene: FreddieHg\_43 Start: 28088, Stop: 29215, Start Num: 39

Candidate Starts for FreddieHg\_43:

(1, 27695), (3, 27761), (4, 27776), (Start: 39 @28088 has 38 MA's), (Start: 46 @28109 has 1 MA's), (61, 28205), (77, 28319), (92, 28382), (108, 28478), (134, 28583), (159, 28733), (199, 28901), (211, 28967), (218, 29024), (228, 29108), (236, 29165),

Gene: Fulcrum\_65 Start: 43693, Stop: 44910, Start Num: 40

Candidate Starts for Fulcrum\_65:

(Start: 40 @43693 has 34 MA's), (45, 43708), (64, 43837), (75, 43927), (76, 43930), (84, 43966), (92, 43999), (120, 44113), (127, 44140), (134, 44179), (137, 44194), (142, 44224), (145, 44254), (150, 44284), (158, 44326), (160, 44332), (211, 44623), (217, 44677), (220, 44686), (222, 44695), (225, 44719), (235, 44812), (251, 44902),

Gene: Fury\_75 Start: 52498, Stop: 51308, Start Num: 35

Candidate Starts for Fury\_75:

(2, 52828), (7, 52726), (Start: 35 @52498 has 2 MA's), (45, 52471), (60, 52378), (75, 52255), (79, 52243), (87, 52201), (92, 52174), (93, 52171), (160, 51841), (170, 51754), (192, 51661), (203, 51613), (220, 51496), (224, 51466), (229, 51409), (233, 51379), (239, 51355),

Gene: GOATification\_65 Start: 43693, Stop: 44910, Start Num: 40

Candidate Starts for GOATification\_65:

(Start: 40 @43693 has 34 MA's), (45, 43708), (64, 43837), (75, 43927), (76, 43930), (84, 43966), (92, 43999), (120, 44113), (127, 44140), (134, 44179), (137, 44194), (142, 44224), (145, 44254), (150, 44284), (158, 44326), (160, 44332), (211, 44623), (217, 44677), (220, 44686), (222, 44695), (225, 44719), (235, 44812), (251, 44902),

Gene: GRU1\_55 Start: 45213, Stop: 44032, Start Num: 38

Candidate Starts for GRU1\_55:

(Start: 38 @45213 has 2 MA's), (Start: 73 @44988 has 1 MA's), (80, 44964), (86, 44928), (92, 44898), (100, 44850), (117, 44787), (150, 44616), (160, 44568), (168, 44493), (170, 44481), (188, 44409), (203, 44340), (220, 44223), (222, 44214), (223, 44199), (239, 44082),

Gene: GTE5\_55 Start: 46020, Stop: 45064, Start Num: 73

Candidate Starts for GTE5\_55:

(Start: 73 @46020 has 1 MA's), (75, 46011), (80, 45996), (86, 45960), (92, 45930), (100, 45882), (117, 45819), (160, 45600), (169, 45516), (170, 45513), (188, 45441), (203, 45372), (220, 45255), (222, 45246), (223, 45231), (233, 45138), (239, 45114),

Gene: GTE8\_55 Start: 46534, Stop: 45335, Start Num: 37

Candidate Starts for GTE8\_55:

(Start: 37 @46534 has 44 MA's), (85, 46249), (87, 46243), (91, 46222), (92, 46216), (147, 45931), (150, 45913), (157, 45880), (160, 45865), (170, 45778), (202, 45646), (203, 45643), (211, 45589), (219, 45529), (220, 45526), (222, 45517), (233, 45409), (239, 45385),

Gene: Genamy16\_68 Start: 43067, Stop: 44284, Start Num: 40

Candidate Starts for Genamy16\_68:

(Start: 40 @43067 has 34 MA's), (45, 43082), (64, 43211), (75, 43301), (76, 43304), (84, 43340), (92, 43373), (120, 43487), (127, 43514), (134, 43553), (137, 43568), (142, 43598), (145, 43628), (150, 43658), (160, 43706), (192, 43895), (217, 44051), (220, 44060), (222, 44069), (225, 44093), (230, 44147), (235, 44186), (251, 44276),

Gene: Gibbin\_67 Start: 44498, Stop: 45715, Start Num: 40

Candidate Starts for Gibbin\_67:

(Start: 40 @44498 has 34 MA's), (45, 44513), (64, 44642), (75, 44732), (76, 44735), (84, 44771), (92, 44804), (120, 44918), (127, 44945), (134, 44984), (137, 44999), (142, 45029), (145, 45059), (150, 45089), (160, 45137), (211, 45428), (217, 45482), (220, 45491), (222, 45500), (225, 45524), (235, 45617), (251, 45707),

Gene: Gibson\_66 Start: 47338, Stop: 46340, Start Num: 41

Candidate Starts for Gibson\_66:

(Start: 41 @47338 has 7 MA's), (45, 47326), (92, 47047), (93, 47044), (121, 46915), (129, 46888), (134, 46852), (145, 46777), (147, 46765), (159, 46702), (208, 46603), (214, 46561), (220, 46528), (222, 46519), (228, 46447), (229, 46441), (241, 46357),

Gene: Gilda\_43 Start: 28844, Stop: 29998, Start Num: 39

Candidate Starts for Gilda\_43:

(1, 28445), (Start: 39 @28844 has 38 MA's), (Start: 46 @28865 has 1 MA's), (77, 29075), (92, 29138), (108, 29234), (134, 29339), (159, 29489), (170, 29579), (181, 29615), (192, 29645), (211, 29750), (218, 29807), (228, 29891), (236, 29948),

Gene: Giuseppe\_58 Start: 43075, Stop: 44253, Start Num: 37

Candidate Starts for Giuseppe\_58:

(5, 42793), (6, 42823), (10, 42886), (Start: 37 @43075 has 44 MA's), (Start: 49 @43123 has 3 MA's), (54, 43162), (57, 43174), (69, 43273), (81, 43336), (92, 43390), (100, 43438), (114, 43504), (143,

43618), (145, 43645), (150, 43675), (159, 43720), (208, 43954), (217, 44020), (220, 44029), (222, 44038), (238, 44164), (251, 44245),

Gene: GretellLyn\_65 Start: 44537, Stop: 45700, Start Num: 40

Candidate Starts for GretellLyn\_65:

(Start: 40 @44537 has 34 MA's), (45, 44552), (64, 44681), (75, 44771), (76, 44774), (84, 44810), (92, 44843), (120, 44957), (127, 44984), (134, 45023), (137, 45038), (142, 45068), (145, 45098), (150, 45128), (160, 45176), (168, 45251), (180, 45272), (192, 45311), (211, 45413), (217, 45467), (220, 45476), (222, 45485), (225, 45509), (235, 45602), (251, 45692),

Gene: GrootJr\_68 Start: 52691, Stop: 51492, Start Num: 37

Candidate Starts for GrootJr\_68:

(Start: 37 @52691 has 44 MA's), (86, 52403), (87, 52400), (91, 52379), (92, 52373), (145, 52100), (147, 52088), (150, 52070), (157, 52037), (160, 52022), (170, 51935), (192, 51848), (195, 51833), (202, 51803), (203, 51800), (211, 51746), (218, 51689), (219, 51686), (220, 51683), (222, 51674), (233, 51566), (239, 51542),

Gene: Gumball\_57 Start: 43615, Stop: 44745, Start Num: 49

Candidate Starts for Gumball\_57:

(16, 43522), (28, 43549), (29, 43552), (Start: 37 @43567 has 44 MA's), (Start: 49 @43615 has 3 MA's), (54, 43654), (57, 43666), (69, 43765), (81, 43828), (92, 43882), (100, 43930), (114, 43996), (143, 44110), (145, 44137), (150, 44167), (159, 44212), (208, 44446), (217, 44512), (220, 44521), (222, 44530), (238, 44656), (251, 44737),

Gene: GuyFagieri\_66 Start: 50059, Stop: 48929, Start Num: 37

Candidate Starts for GuyFagieri\_66:

(11, 50194), (18, 50089), (Start: 37 @50059 has 44 MA's), (70, 49861), (92, 49738), (94, 49726), (127, 49600), (132, 49573), (160, 49411), (175, 49318), (200, 49246), (220, 49120), (221, 49114), (236, 48988),

Gene: Hager\_44 Start: 28317, Stop: 29423, Start Num: 39

Candidate Starts for Hager\_44:

(Start: 39 @28317 has 38 MA's), (Start: 46 @28338 has 1 MA's), (77, 28548), (90, 28599), (92, 28611), (108, 28707), (134, 28812), (159, 28962), (211, 29175), (228, 29316), (236, 29373),

Gene: Haunter\_43 Start: 28275, Stop: 29381, Start Num: 39

Candidate Starts for Haunter\_43:

(Start: 39 @28275 has 38 MA's), (Start: 46 @28296 has 1 MA's), (77, 28506), (92, 28569), (108, 28665), (134, 28770), (159, 28920), (211, 29133), (218, 29190), (228, 29274), (236, 29331),

Gene: Hawkeye\_60 Start: 42876, Stop: 44036, Start Num: 37

Candidate Starts for Hawkeye\_60:

(24, 42849), (Start: 37 @42876 has 44 MA's), (54, 42963), (69, 43074), (92, 43191), (97, 43212), (126, 43332), (144, 43440), (145, 43446), (147, 43458), (159, 43521), (189, 43638), (203, 43695), (217, 43803), (220, 43812), (221, 43818), (222, 43821),

Gene: Helpful\_60 Start: 43436, Stop: 44614, Start Num: 37

Candidate Starts for Helpful\_60:

(5, 43154), (10, 43247), (Start: 37 @43436 has 44 MA's), (Start: 49 @43484 has 3 MA's), (54, 43523), (57, 43535), (69, 43634), (81, 43697), (92, 43751), (100, 43799), (114, 43865), (143, 43979), (145, 44006), (150, 44036), (159, 44081), (208, 44315), (217, 44381), (220, 44390), (222, 44399), (238, 44525), (251, 44606),

Gene: Hiddenleaf\_43 Start: 28072, Stop: 29199, Start Num: 39

Candidate Starts for Hiddenleaf\_43:

(1, 27679), (3, 27745), (4, 27760), (Start: 39 @28072 has 38 MA's), (Start: 46 @28093 has 1 MA's), (61, 28189), (77, 28303), (92, 28366), (108, 28462), (134, 28567), (159, 28717), (199, 28885), (211, 28951), (218, 29008), (228, 29092), (236, 29149),

Gene: HubbaBubba\_62 Start: 48109, Stop: 47129, Start Num: 72

Candidate Starts for HubbaBubba\_62:

(72, 48109), (79, 48085), (86, 48046), (87, 48043), (92, 48016), (96, 47998), (104, 47941), (145, 47743), (147, 47731), (160, 47665), (163, 47638), (169, 47581), (192, 47485), (202, 47440), (203, 47437), (206, 47425), (211, 47383), (220, 47320), (222, 47311), (232, 47209), (233, 47203), (239, 47179),

Gene: IDyn\_65 Start: 49575, Stop: 48376, Start Num: 39

Candidate Starts for IDyn\_65:

(28, 49602), (Start: 39 @49575 has 38 MA's), (72, 49356), (79, 49332), (86, 49293), (87, 49290), (92, 49263), (96, 49245), (104, 49188), (145, 48990), (147, 48978), (160, 48912), (163, 48885), (169, 48828), (192, 48732), (202, 48687), (203, 48684), (206, 48672), (211, 48630), (220, 48567), (222, 48558), (232, 48456), (233, 48450), (239, 48426),

Gene: Indlulamithi\_68 Start: 48569, Stop: 49600, Start Num: 40

Candidate Starts for Indlulamithi\_68:

(Start: 40 @48569 has 34 MA's), (45, 48584), (59, 48671), (61, 48686), (63, 48710), (Start: 73 @48794 has 1 MA's), (84, 48845), (95, 48896), (105, 48959), (120, 48995), (124, 49013), (126, 49019), (137, 49076), (150, 49166), (159, 49211), (166, 49250), (209, 49316), (218, 49379), (220, 49385), (224, 49415),

Gene: JDawG\_42 Start: 28489, Stop: 29616, Start Num: 39

Candidate Starts for JDawG\_42:

(1, 28096), (4, 28177), (Start: 39 @28489 has 38 MA's), (Start: 46 @28510 has 1 MA's), (77, 28720), (92, 28783), (108, 28879), (134, 28984), (159, 29134), (199, 29302), (211, 29368), (228, 29509), (236, 29566),

Gene: Jalebi\_64 Start: 44890, Stop: 46053, Start Num: 40

Candidate Starts for Jalebi\_64:

(Start: 40 @44890 has 34 MA's), (45, 44905), (64, 45034), (75, 45124), (76, 45127), (84, 45163), (92, 45196), (120, 45310), (127, 45337), (134, 45376), (137, 45391), (142, 45421), (145, 45451), (150, 45481), (160, 45529), (192, 45664), (211, 45766), (217, 45820), (220, 45829), (222, 45838), (225, 45862), (235, 45955), (251, 46045),

Gene: Jifall16\_66 Start: 53318, Stop: 52119, Start Num: 37

Candidate Starts for Jifall16\_66:

(Start: 37 @53318 has 44 MA's), (86, 53030), (87, 53027), (91, 53006), (92, 53000), (145, 52727), (147, 52715), (150, 52697), (157, 52664), (160, 52649), (170, 52562), (192, 52475), (195, 52460), (202, 52430), (203, 52427), (211, 52373), (218, 52316), (219, 52313), (220, 52310), (222, 52301), (233, 52193), (239, 52169),

Gene: JingleBells\_43 Start: 28193, Stop: 29350, Start Num: 39

Candidate Starts for JingleBells\_43:

(1, 27800), (4, 27881), (Start: 39 @28193 has 38 MA's), (Start: 46 @28214 has 1 MA's), (77, 28424), (92, 28487), (108, 28583), (134, 28688), (159, 28838), (198, 29030), (199, 29036), (211, 29102), (228, 29243), (236, 29300),

Gene: Kabluna\_69 Start: 52277, Stop: 51069, Start Num: 39

Candidate Starts for Kabluna\_69:

(Start: 39 @52277 has 38 MA's), (72, 52055), (79, 52031), (81, 52016), (86, 51992), (87, 51989), (92, 51962), (104, 51887), (132, 51770), (147, 51674), (160, 51608), (174, 51497), (188, 51449), (192, 51428), (201, 51386), (206, 51368), (211, 51326), (217, 51272), (220, 51263), (222, 51254), (233, 51146),

Gene: KandZ\_56 Start: 43281, Stop: 44411, Start Num: 49

Candidate Starts for KandZ\_56:

(Start: 37 @43233 has 44 MA's), (Start: 49 @43281 has 3 MA's), (54, 43320), (57, 43332), (69, 43431), (81, 43494), (92, 43548), (100, 43596), (114, 43662), (143, 43776), (145, 43803), (150, 43833), (159, 43878), (208, 44112), (217, 44178), (220, 44187), (222, 44196), (238, 44322), (251, 44403),

Gene: Karate\_42 Start: 28845, Stop: 29999, Start Num: 39

Candidate Starts for Karate\_42:

(Start: 39 @28845 has 38 MA's), (Start: 46 @28866 has 1 MA's), (77, 29076), (92, 29139), (108, 29235), (134, 29340), (159, 29490), (181, 29616), (192, 29646), (211, 29751), (228, 29892), (236, 29949),

Gene: Kate\_44 Start: 28852, Stop: 30006, Start Num: 39

Candidate Starts for Kate\_44:

(1, 28453), (Start: 39 @28852 has 38 MA's), (Start: 46 @28873 has 1 MA's), (77, 29083), (92, 29146), (108, 29242), (134, 29347), (159, 29497), (170, 29587), (181, 29623), (192, 29653), (211, 29758), (218, 29815), (228, 29899), (236, 29956),

Gene: KidneyBean\_67 Start: 53442, Stop: 52243, Start Num: 37

Candidate Starts for KidneyBean\_67:

(Start: 37 @53442 has 44 MA's), (86, 53154), (87, 53151), (91, 53130), (92, 53124), (145, 52851), (147, 52839), (150, 52821), (157, 52788), (160, 52773), (170, 52686), (192, 52599), (195, 52584), (202, 52554), (203, 52551), (211, 52497), (218, 52440), (219, 52437), (220, 52434), (222, 52425), (233, 52317), (239, 52293),

Gene: Kimchi1738\_70 Start: 50509, Stop: 49391, Start Num: 43

Candidate Starts for Kimchi1738\_70:

(Start: 43 @50509 has 10 MA's), (63, 50374), (70, 50323), (92, 50209), (99, 50167), (104, 50134), (122, 50071), (124, 50062), (127, 50053), (134, 50017), (142, 49963), (168, 49780), (216, 49591), (220, 49570), (224, 49540), (231, 49468), (234, 49453), (235, 49444),

Gene: Konstantine\_71 Start: 50914, Stop: 52203, Start Num: 26

Candidate Starts for Konstantine\_71:

(14, 50875), (Start: 22 @50899 has 1 MA's), (Start: 26 @50914 has 7 MA's), (55, 51028), (58, 51046), (63, 51088), (91, 51262), (92, 51268), (100, 51319), (124, 51433), (128, 51451), (129, 51454), (131, 51469), (136, 51490), (154, 51622), (156, 51628), (197, 51811), (203, 51829), (211, 51883), (219, 51943), (225, 51979), (236, 52075),

Gene: Kors\_47 Start: 29786, Stop: 30883, Start Num: 42

Candidate Starts for Kors\_47:

(Start: 17 @29732 has 1 MA's), (Start: 42 @29786 has 2 MA's), (44, 29789), (Start: 46 @29795 has 1 MA's), (77, 30005), (78, 30011), (90, 30056), (92, 30068), (103, 30131), (108, 30164), (134, 30269), (161, 30431), (199, 30566), (206, 30590), (230, 30782), (236, 30830),

Gene: Krampus\_43 Start: 28852, Stop: 30006, Start Num: 39

Candidate Starts for Krampus\_43:

(1, 28453), (Start: 39 @28852 has 38 MA's), (Start: 46 @28873 has 1 MA's), (77, 29083), (92, 29146), (108, 29242), (134, 29347), (159, 29497), (170, 29587), (181, 29623), (192, 29653), (211, 29758), (218, 29815), (228, 29899), (236, 29956),

Gene: Kurt\_66 Start: 53312, Stop: 52113, Start Num: 37

Candidate Starts for Kurt\_66:

(Start: 37 @53312 has 44 MA's), (86, 53024), (87, 53021), (91, 53000), (92, 52994), (145, 52721), (147, 52709), (150, 52691), (157, 52658), (160, 52643), (170, 52556), (192, 52469), (195, 52454), (202, 52424), (203, 52421), (211, 52367), (218, 52310), (219, 52307), (220, 52304), (222, 52295), (233, 52187), (239, 52163),

Gene: Labelle\_80 Start: 52685, Stop: 53917, Start Num: 33

Candidate Starts for Labelle\_80:

(Start: 33 @52685 has 3 MA's), (50, 52739), (56, 52778), (57, 52781), (58, 52790), (62, 52823), (65, 52847), (90, 53012), (92, 53024), (106, 53105), (125, 53189), (130, 53210), (136, 53252), (156, 53390), (164, 53441), (169, 53492), (191, 53528), (203, 53576), (211, 53630), (220, 53693), (240, 53861), (249, 53903),

Gene: Lambo\_63 Start: 43490, Stop: 44707, Start Num: 40

Candidate Starts for Lambo\_63:

(Start: 40 @43490 has 34 MA's), (45, 43505), (64, 43634), (75, 43724), (76, 43727), (84, 43763), (92, 43796), (120, 43910), (127, 43937), (134, 43976), (137, 43991), (142, 44021), (145, 44051), (150, 44081), (160, 44129), (211, 44420), (217, 44474), (220, 44483), (222, 44492), (225, 44516), (235, 44609), (251, 44699),

Gene: Leopard\_73 Start: 50916, Stop: 52133, Start Num: 37

Candidate Starts for Leopard\_73:

(Start: 37 @50916 has 44 MA's), (Start: 46 @50943 has 1 MA's), (52, 50997), (58, 51042), (66, 51108), (67, 51120), (72, 51168), (75, 51180), (82, 51210), (83, 51213), (90, 51240), (95, 51267), (120, 51396), (140, 51516), (142, 51522), (156, 51612), (162, 51654), (165, 51672), (167, 51690), (193, 51753), (208, 51837), (220, 51912), (221, 51918), (222, 51921), (228, 51990), (230, 51999), (237, 52044), (245, 52101),

Gene: Lila22\_69 Start: 44442, Stop: 45659, Start Num: 40

Candidate Starts for Lila22\_69:

(Start: 40 @44442 has 34 MA's), (45, 44457), (64, 44586), (75, 44676), (76, 44679), (84, 44715), (92, 44748), (120, 44862), (127, 44889), (134, 44928), (137, 44943), (142, 44973), (145, 45003), (150, 45033), (160, 45081), (217, 45426), (220, 45435), (222, 45444), (225, 45468), (235, 45561), (251, 45651),

Gene: Lizz\_66 Start: 47161, Stop: 46163, Start Num: 41

Candidate Starts for Lizz\_66:

(23, 47212), (Start: 41 @47161 has 7 MA's), (45, 47149), (92, 46870), (93, 46867), (121, 46738), (129, 46711), (134, 46675), (145, 46600), (147, 46588), (159, 46525), (214, 46384), (220, 46351), (222, 46342), (228, 46270), (229, 46264), (241, 46180),

Gene: Lollipop1437\_70 Start: 53959, Stop: 52760, Start Num: 31

Candidate Starts for Lollipop1437\_70:

(Start: 31 @53959 has 2 MA's), (Start: 34 @53950 has 1 MA's), (69, 53752), (85, 53659), (86, 53656), (87, 53653), (92, 53626), (96, 53608), (104, 53551), (147, 53356), (148, 53353), (150, 53338), (160, 53290), (176, 53176), (179, 53164), (192, 53116), (203, 53068), (211, 53014), (220, 52951), (222, 52942), (235, 52822),

Gene: LuckyLeo\_62 Start: 43297, Stop: 44457, Start Num: 40

Candidate Starts for LuckyLeo\_62:

(Start: 40 @43297 has 34 MA's), (45, 43312), (64, 43441), (75, 43531), (87, 43576), (92, 43603), (127, 43744), (137, 43795), (142, 43825), (145, 43855), (160, 43933), (167, 43993), (168, 44008), (177, 44029), (192, 44068), (193, 44074), (212, 44176), (217, 44224), (220, 44233), (225, 44266), (235, 44359), (251, 44449),

Gene: MacGully\_76 Start: 53240, Stop: 52086, Start Num: 37

Candidate Starts for MacGully\_76:

(18, 53291), (Start: 37 @53240 has 44 MA's), (70, 53042), (87, 52946), (92, 52919), (94, 52907), (100, 52871), (127, 52781), (159, 52595), (160, 52592), (165, 52550), (174, 52490), (203, 52394), (220, 52277), (221, 52271), (235, 52148), (236, 52145),

Gene: Madruga\_79 Start: 52639, Stop: 53871, Start Num: 33

Candidate Starts for Madruga\_79:

(Start: 33 @52639 has 3 MA's), (50, 52693), (57, 52735), (58, 52744), (62, 52777), (65, 52801), (90, 52966), (92, 52978), (106, 53059), (125, 53143), (130, 53164), (136, 53206), (156, 53344), (164, 53395), (169, 53446), (191, 53482), (203, 53530), (211, 53584), (220, 53647), (240, 53815), (249, 53857),

Gene: Marietta\_68 Start: 49875, Stop: 48676, Start Num: 39

Candidate Starts for Marietta\_68:

(Start: 39 @49875 has 38 MA's), (72, 49656), (79, 49632), (86, 49593), (87, 49590), (92, 49563), (96, 49545), (104, 49488), (145, 49290), (160, 49212), (163, 49185), (169, 49128), (170, 49125), (192, 49032), (202, 48987), (203, 48984), (206, 48972), (211, 48930), (220, 48867), (222, 48858), (232, 48756), (233, 48750), (239, 48726),

Gene: Maselop\_67 Start: 50089, Stop: 48926, Start Num: 37

Candidate Starts for Maselop\_67:

(11, 50227), (18, 50119), (Start: 37 @50089 has 44 MA's), (70, 49891), (92, 49768), (94, 49756), (127, 49630), (132, 49603), (160, 49441), (186, 49297), (197, 49258), (203, 49234), (220, 49117), (221, 49111), (236, 48985),

Gene: Megatron06\_70 Start: 50774, Stop: 51949, Start Num: 55

Candidate Starts for Megatron06\_70:

(14, 50621), (Start: 22 @50645 has 1 MA's), (Start: 26 @50660 has 7 MA's), (55, 50774), (57, 50783), (58, 50792), (63, 50834), (91, 51008), (92, 51014), (100, 51065), (124, 51179), (128, 51197), (129, 51200), (131, 51215), (136, 51236), (154, 51368), (156, 51374), (184, 51512), (197, 51557), (203, 51575), (211, 51629), (219, 51689), (225, 51725), (236, 51821),

Gene: MerCougar\_69 Start: 54002, Stop: 52794, Start Num: 39

Candidate Starts for MerCougar\_69:

(Start: 39 @54002 has 38 MA's), (72, 53780), (79, 53756), (86, 53717), (87, 53714), (92, 53687), (104, 53612), (147, 53399), (160, 53333), (170, 53246), (174, 53222), (188, 53174), (203, 53105), (206, 53093), (211, 53051), (217, 52997), (220, 52988), (222, 52979), (233, 52871), (235, 52859),

Gene: MoiGyank\_71 Start: 44818, Stop: 45981, Start Num: 40

Candidate Starts for MoiGyank\_71:

(Start: 40 @44818 has 34 MA's), (45, 44833), (64, 44962), (75, 45052), (76, 45055), (84, 45091), (92, 45124), (120, 45238), (127, 45265), (134, 45304), (137, 45319), (142, 45349), (145, 45379), (150, 45409), (160, 45457), (192, 45592), (211, 45694), (217, 45748), (220, 45757), (222, 45766), (225, 45790), (235, 45883), (251, 45973),



Gene: MontyDev\_69 Start: 51361, Stop: 52530, Start Num: 40

Candidate Starts for MontyDev\_69:

(Start: 40 @51361 has 34 MA's), (45, 51376), (51, 51418), (57, 51451), (89, 51652), (92, 51667), (120, 51799), (134, 51862), (137, 51877), (155, 51994), (199, 52195), (201, 52201), (203, 52207), (204, 52210), (218, 52318), (220, 52324), (236, 52456), (246, 52516),

Gene: Mopey\_58 Start: 43111, Stop: 44289, Start Num: 37

Candidate Starts for Mopey\_58:

(5, 42829), (6, 42859), (10, 42922), (Start: 37 @43111 has 44 MA's), (Start: 49 @43159 has 3 MA's), (54, 43198), (57, 43210), (69, 43309), (81, 43372), (92, 43426), (100, 43474), (114, 43540), (143, 43654), (145, 43681), (150, 43711), (159, 43756), (208, 43990), (217, 44056), (220, 44065), (222, 44074), (238, 44200), (251, 44281),

Gene: MortySmith\_41 Start: 27877, Stop: 29034, Start Num: 39

Candidate Starts for MortySmith\_41:

(1, 27484), (4, 27565), (Start: 39 @27877 has 38 MA's), (Start: 46 @27898 has 1 MA's), (77, 28108), (92, 28171), (108, 28267), (134, 28372), (159, 28522), (198, 28714), (199, 28720), (211, 28786), (228, 28927), (236, 28984),

Gene: MrMiyagi\_76 Start: 48172, Stop: 49212, Start Num: 37

Candidate Starts for MrMiyagi\_76:

(24, 48133), (Start: 37 @48172 has 44 MA's), (Start: 40 @48181 has 34 MA's), (45, 48196), (48, 48217), (61, 48298), (Start: 73 @48406 has 1 MA's), (84, 48457), (93, 48496), (100, 48541), (102, 48550), (132, 48664), (137, 48688), (153, 48799), (205, 48892), (211, 48934), (220, 48997), (224, 49027), (235, 49126),

Gene: NadineRae\_67 Start: 49484, Stop: 48285, Start Num: 39

Candidate Starts for NadineRae\_67:

(Start: 39 @49484 has 38 MA's), (72, 49265), (79, 49241), (86, 49202), (87, 49199), (92, 49172), (96, 49154), (104, 49097), (145, 48899), (160, 48821), (163, 48794), (192, 48641), (202, 48596), (203, 48593), (206, 48581), (211, 48539), (220, 48476), (222, 48467), (232, 48365), (233, 48359), (239, 48335),

Gene: NarutoRun\_43 Start: 28820, Stop: 29974, Start Num: 39

Candidate Starts for NarutoRun\_43:

(1, 28421), (Start: 39 @28820 has 38 MA's), (Start: 46 @28841 has 1 MA's), (56, 28910), (77, 29051), (92, 29114), (108, 29210), (134, 29315), (159, 29465), (170, 29555), (181, 29591), (192, 29621), (211, 29726), (218, 29783), (228, 29867), (236, 29924),

Gene: NatB6\_66 Start: 52381, Stop: 51182, Start Num: 37

Candidate Starts for NatB6\_66:

(Start: 37 @52381 has 44 MA's), (86, 52093), (87, 52090), (91, 52069), (92, 52063), (145, 51790), (147, 51778), (150, 51760), (157, 51727), (160, 51712), (170, 51625), (192, 51538), (195, 51523), (202, 51493), (203, 51490), (211, 51436), (218, 51379), (219, 51376), (220, 51373), (222, 51364), (233, 51256), (239, 51232),

Gene: Neptune\_43 Start: 28820, Stop: 29974, Start Num: 39

Candidate Starts for Neptune\_43:

(1, 28421), (Start: 39 @28820 has 38 MA's), (Start: 46 @28841 has 1 MA's), (77, 29051), (92, 29114), (108, 29210), (134, 29315), (159, 29465), (170, 29555), (181, 29591), (192, 29621), (211, 29726), (218, 29783), (228, 29867), (236, 29924),

Gene: Nilo\_71 Start: 51718, Stop: 52887, Start Num: 40

Candidate Starts for Nilo\_71:

(Start: 40 @51718 has 34 MA's), (45, 51733), (51, 51775), (57, 51808), (89, 52009), (92, 52024), (120, 52156), (134, 52219), (137, 52234), (150, 52324), (155, 52351), (199, 52552), (201, 52558), (203, 52564), (218, 52675), (220, 52681), (236, 52813), (246, 52873),

Gene: NorManre\_69 Start: 44890, Stop: 46107, Start Num: 40

Candidate Starts for NorManre\_69:

(Start: 40 @44890 has 34 MA's), (45, 44905), (64, 45034), (75, 45124), (76, 45127), (84, 45163), (92, 45196), (120, 45310), (127, 45337), (134, 45376), (137, 45391), (142, 45421), (145, 45451), (150, 45481), (160, 45529), (211, 45820), (217, 45874), (220, 45883), (222, 45892), (225, 45916), (235, 46009), (251, 46099),

Gene: NosilaM\_69 Start: 53310, Stop: 52105, Start Num: 39

Candidate Starts for NosilaM\_69:

(Start: 39 @53310 has 38 MA's), (72, 53091), (79, 53067), (86, 53028), (87, 53025), (92, 52998), (147, 52710), (160, 52644), (174, 52533), (188, 52485), (206, 52404), (211, 52362), (217, 52308), (220, 52299), (222, 52290), (233, 52182),

Gene: Nova\_56 Start: 43563, Stop: 44741, Start Num: 37

Candidate Starts for Nova\_56:

(5, 43281), (6, 43311), (15, 43497), (Start: 37 @43563 has 44 MA's), (Start: 49 @43611 has 3 MA's), (54, 43650), (57, 43662), (69, 43761), (81, 43824), (92, 43878), (100, 43926), (114, 43992), (143, 44106), (145, 44133), (150, 44163), (159, 44208), (208, 44442), (217, 44508), (220, 44517), (222, 44526), (238, 44652), (251, 44733),

Gene: NovaSharks\_67 Start: 42658, Stop: 43875, Start Num: 40

Candidate Starts for NovaSharks\_67:

(Start: 40 @42658 has 34 MA's), (45, 42673), (64, 42802), (75, 42892), (76, 42895), (84, 42931), (92, 42964), (120, 43078), (127, 43105), (134, 43144), (137, 43159), (142, 43189), (145, 43219), (150, 43249), (160, 43297), (192, 43486), (217, 43642), (220, 43651), (222, 43660), (225, 43684), (230, 43738), (235, 43777), (251, 43867),

Gene: NovumRegina\_66 Start: 52690, Stop: 51491, Start Num: 37

Candidate Starts for NovumRegina\_66:

(Start: 37 @52690 has 44 MA's), (86, 52402), (87, 52399), (91, 52378), (92, 52372), (145, 52099), (147, 52087), (150, 52069), (157, 52036), (160, 52021), (170, 51934), (192, 51847), (195, 51832), (202, 51802), (203, 51799), (211, 51745), (218, 51688), (219, 51685), (220, 51682), (222, 51673), (233, 51565), (239, 51541),

Gene: Oaker\_67 Start: 50680, Stop: 52002, Start Num: 26

Candidate Starts for Oaker\_67:

(14, 50641), (Start: 22 @50665 has 1 MA's), (Start: 26 @50680 has 7 MA's), (55, 50794), (57, 50803), (58, 50812), (63, 50854), (91, 51028), (92, 51034), (100, 51085), (124, 51232), (128, 51250), (129, 51253), (131, 51268), (136, 51289), (154, 51421), (156, 51427), (197, 51610), (203, 51628), (211, 51682), (219, 51742), (225, 51778), (236, 51874),

Gene: Onyinye\_74 Start: 50783, Stop: 52000, Start Num: 37

Candidate Starts for Onyinye\_74:

(Start: 37 @50783 has 44 MA's), (Start: 46 @50810 has 1 MA's), (52, 50864), (58, 50909), (66, 50975), (67, 50987), (75, 51047), (82, 51077), (83, 51080), (90, 51107), (95, 51134), (120, 51263), (140, 51383), (142, 51389), (156, 51479), (162, 51521), (165, 51539), (167, 51557), (193, 51620), (208, 51704), (220, 51779), (221, 51785), (222, 51788), (228, 51857), (230, 51866), (237, 51911),

(245, 51968),

Gene: OtterstedtS21\_65 Start: 43824, Stop: 45041, Start Num: 40

Candidate Starts for OtterstedtS21\_65:

(Start: 40 @43824 has 34 MA's), (45, 43839), (64, 43968), (75, 44058), (76, 44061), (84, 44097), (92, 44130), (120, 44244), (127, 44271), (134, 44310), (137, 44325), (142, 44355), (145, 44385), (150, 44415), (160, 44463), (211, 44754), (217, 44808), (220, 44817), (222, 44826), (225, 44850), (235, 44943), (251, 45033),

Gene: Outis\_67 Start: 53139, Stop: 51931, Start Num: 39

Candidate Starts for Outis\_67:

(Start: 39 @53139 has 38 MA's), (45, 53121), (72, 52917), (79, 52893), (86, 52854), (87, 52851), (92, 52824), (104, 52749), (127, 52662), (147, 52536), (160, 52470), (174, 52359), (188, 52311), (203, 52242), (211, 52188), (217, 52134), (220, 52125), (222, 52116), (233, 52008), (235, 51996),

Gene: OverHedge\_44 Start: 28810, Stop: 29964, Start Num: 39

Candidate Starts for OverHedge\_44:

(1, 28411), (Start: 39 @28810 has 38 MA's), (Start: 46 @28831 has 1 MA's), (77, 29041), (92, 29104), (108, 29200), (134, 29305), (159, 29455), (170, 29545), (181, 29581), (192, 29611), (211, 29716), (218, 29773), (228, 29857), (236, 29914),

Gene: P1201\_73 Start: 54596, Stop: 53460, Start Num: 38

Candidate Starts for P1201\_73:

(Start: 38 @54596 has 2 MA's), (81, 54338), (92, 54287), (93, 54284), (112, 54173), (160, 53918), (203, 53753), (220, 53636), (234, 53519),

Gene: PBI1\_54 Start: 43038, Stop: 44216, Start Num: 37

Candidate Starts for PBI1\_54:

(5, 42756), (6, 42786), (10, 42849), (Start: 37 @43038 has 44 MA's), (Start: 49 @43086 has 3 MA's), (54, 43125), (57, 43137), (69, 43236), (81, 43299), (92, 43353), (100, 43401), (114, 43467), (143, 43581), (145, 43608), (150, 43638), (159, 43683), (208, 43917), (217, 43983), (220, 43992), (222, 44001), (238, 44127), (251, 44208),

Gene: PHTowN\_66 Start: 47159, Stop: 46161, Start Num: 41

Candidate Starts for PHTowN\_66:

(23, 47210), (Start: 41 @47159 has 7 MA's), (45, 47147), (92, 46868), (93, 46865), (121, 46736), (129, 46709), (134, 46673), (145, 46598), (147, 46586), (159, 46523), (214, 46382), (220, 46349), (222, 46340), (228, 46268), (229, 46262), (241, 46178),

Gene: PLOT\_57 Start: 43090, Stop: 44268, Start Num: 37

Candidate Starts for PLOT\_57:

(5, 42808), (10, 42901), (Start: 37 @43090 has 44 MA's), (Start: 49 @43138 has 3 MA's), (54, 43177), (57, 43189), (69, 43288), (81, 43351), (92, 43405), (100, 43453), (114, 43519), (143, 43633), (145, 43660), (150, 43690), (159, 43735), (208, 43969), (217, 44035), (220, 44044), (222, 44053), (238, 44179), (251, 44260),

Gene: Papyrus\_69 Start: 51328, Stop: 52497, Start Num: 40

Candidate Starts for Papyrus\_69:

(Start: 40 @51328 has 34 MA's), (45, 51343), (51, 51385), (57, 51418), (89, 51619), (92, 51634), (120, 51766), (134, 51829), (137, 51844), (150, 51934), (155, 51961), (199, 52162), (201, 52168), (203, 52174), (218, 52285), (220, 52291), (236, 52423), (246, 52483),

Gene: ParvusTarda\_64 Start: 43199, Stop: 44413, Start Num: 40

Candidate Starts for ParvusTarda\_64:

(Start: 40 @43199 has 34 MA's), (45, 43214), (64, 43343), (74, 43427), (87, 43478), (92, 43505), (120, 43619), (127, 43646), (137, 43697), (139, 43712), (142, 43727), (145, 43757), (160, 43835), (192, 44024), (212, 44132), (217, 44180), (220, 44189), (222, 44198), (225, 44222), (235, 44315), (251, 44405),

Gene: Patience\_81 Start: 53552, Stop: 54784, Start Num: 33

Candidate Starts for Patience\_81:

(Start: 33 @53552 has 3 MA's), (50, 53606), (56, 53645), (57, 53648), (58, 53657), (62, 53690), (65, 53714), (90, 53879), (92, 53891), (106, 53972), (125, 54056), (130, 54077), (136, 54119), (156, 54257), (164, 54308), (169, 54359), (191, 54395), (203, 54443), (211, 54497), (220, 54560), (240, 54728), (249, 54770),

Gene: Patio\_68 Start: 53007, Stop: 51817, Start Num: 34

Candidate Starts for Patio\_68:

(Start: 31 @53016 has 2 MA's), (Start: 34 @53007 has 1 MA's), (69, 52809), (85, 52716), (86, 52713), (87, 52710), (92, 52683), (96, 52665), (104, 52608), (147, 52413), (148, 52410), (150, 52395), (160, 52347), (176, 52233), (179, 52221), (192, 52173), (203, 52125), (211, 52071), (220, 52008), (222, 51999), (235, 51879),

Gene: Patos\_69 Start: 44889, Stop: 46106, Start Num: 40

Candidate Starts for Patos\_69:

(Start: 40 @44889 has 34 MA's), (45, 44904), (64, 45033), (75, 45123), (76, 45126), (84, 45162), (92, 45195), (120, 45309), (127, 45336), (134, 45375), (137, 45390), (142, 45420), (145, 45450), (150, 45480), (160, 45528), (211, 45819), (217, 45873), (220, 45882), (222, 45891), (225, 45915), (235, 46008), (251, 46098),

Gene: Penelope2018\_57 Start: 43108, Stop: 44286, Start Num: 37

Candidate Starts for Penelope2018\_57:

(5, 42826), (10, 42919), (Start: 37 @43108 has 44 MA's), (Start: 49 @43156 has 3 MA's), (54, 43195), (57, 43207), (69, 43306), (81, 43369), (92, 43423), (100, 43471), (114, 43537), (143, 43651), (145, 43678), (150, 43708), (159, 43753), (208, 43987), (217, 44053), (220, 44062), (222, 44071), (238, 44197), (251, 44278),

Gene: Penjamin420\_66 Start: 44008, Stop: 45210, Start Num: 45

Candidate Starts for Penjamin420\_66:

(Start: 40 @43993 has 34 MA's), (45, 44008), (64, 44137), (75, 44227), (76, 44230), (84, 44266), (92, 44299), (120, 44413), (127, 44440), (134, 44479), (137, 44494), (142, 44524), (145, 44554), (150, 44584), (160, 44632), (211, 44923), (217, 44977), (220, 44986), (222, 44995), (225, 45019), (235, 45112), (251, 45202),

Gene: PeteyPab\_68 Start: 50318, Stop: 49200, Start Num: 43

Candidate Starts for PeteyPab\_68:

(Start: 43 @50318 has 10 MA's), (63, 50183), (70, 50132), (81, 50069), (92, 50018), (99, 49976), (104, 49943), (108, 49922), (122, 49880), (124, 49871), (127, 49862), (134, 49826), (142, 49772), (168, 49589), (216, 49400), (220, 49379), (224, 49349), (231, 49277), (234, 49262), (235, 49253),

Gene: Pharpay\_43 Start: 28865, Stop: 30019, Start Num: 39

Candidate Starts for Pharpay\_43:

(1, 28466), (Start: 39 @28865 has 38 MA's), (Start: 46 @28886 has 1 MA's), (56, 28955), (77, 29096), (92, 29159), (108, 29255), (134, 29360), (159, 29510), (170, 29600), (181, 29636), (192, 29666), (211, 29771), (218, 29828), (228, 29912), (236, 29969),

Gene: Phomeo\_67 Start: 53314, Stop: 52115, Start Num: 37

Candidate Starts for Phomeo\_67:

(Start: 37 @53314 has 44 MA's), (86, 53026), (87, 53023), (91, 53002), (92, 52996), (145, 52723), (147, 52711), (150, 52693), (157, 52660), (160, 52645), (170, 52558), (192, 52471), (195, 52456), (202, 52426), (203, 52423), (211, 52369), (218, 52312), (219, 52309), (220, 52306), (222, 52297), (233, 52189), (239, 52165),

Gene: Phreeze\_66 Start: 49680, Stop: 50969, Start Num: 26

Candidate Starts for Phreeze\_66:

(14, 49641), (Start: 22 @49665 has 1 MA's), (Start: 26 @49680 has 7 MA's), (55, 49794), (57, 49803), (58, 49812), (63, 49854), (91, 50028), (92, 50034), (100, 50085), (124, 50199), (128, 50217), (129, 50220), (131, 50235), (136, 50256), (154, 50388), (156, 50394), (184, 50532), (197, 50577), (203, 50595), (211, 50649), (219, 50709), (225, 50745), (236, 50841),

Gene: PhunaPhoke\_43 Start: 28838, Stop: 29992, Start Num: 39

Candidate Starts for PhunaPhoke\_43:

(1, 28439), (Start: 39 @28838 has 38 MA's), (Start: 46 @28859 has 1 MA's), (77, 29069), (92, 29132), (108, 29228), (134, 29333), (159, 29483), (170, 29573), (181, 29609), (192, 29639), (211, 29744), (218, 29801), (228, 29885), (236, 29942),

Gene: Pleakley\_75 Start: 52499, Stop: 51309, Start Num: 35

Candidate Starts for Pleakley\_75:

(2, 52829), (7, 52727), (Start: 35 @52499 has 2 MA's), (45, 52472), (60, 52379), (75, 52256), (79, 52244), (87, 52202), (92, 52175), (93, 52172), (160, 51842), (170, 51755), (192, 51662), (203, 51614), (220, 51497), (224, 51467), (229, 51410), (233, 51380), (239, 51356),

Gene: Polyuki\_67 Start: 50081, Stop: 48915, Start Num: 37

Candidate Starts for Polyuki\_67:

(11, 50219), (18, 50111), (Start: 37 @50081 has 44 MA's), (70, 49883), (92, 49760), (104, 49685), (127, 49622), (132, 49595), (146, 49502), (149, 49487), (152, 49463), (159, 49436), (160, 49433), (203, 49223), (209, 49175), (220, 49106), (221, 49100), (236, 48974),

Gene: PotatoChip\_69 Start: 50320, Stop: 49202, Start Num: 43

Candidate Starts for PotatoChip\_69:

(Start: 43 @50320 has 10 MA's), (63, 50185), (70, 50134), (81, 50071), (92, 50020), (99, 49978), (104, 49945), (108, 49924), (122, 49882), (124, 49873), (127, 49864), (134, 49828), (142, 49774), (168, 49591), (216, 49402), (220, 49381), (224, 49351), (231, 49279), (234, 49264), (235, 49255),

Gene: Potty\_43 Start: 28843, Stop: 29997, Start Num: 39

Candidate Starts for Potty\_43:

(1, 28444), (Start: 39 @28843 has 38 MA's), (Start: 46 @28864 has 1 MA's), (77, 29074), (92, 29137), (108, 29233), (134, 29338), (159, 29488), (170, 29578), (181, 29614), (192, 29644), (211, 29749), (218, 29806), (228, 29890), (236, 29947),

Gene: Poultruss\_43 Start: 29185, Stop: 30312, Start Num: 39

Candidate Starts for Poultruss\_43:

(Start: 39 @29185 has 38 MA's), (Start: 46 @29206 has 1 MA's), (77, 29416), (92, 29479), (108, 29575), (134, 29680), (159, 29830), (199, 29998), (211, 30064), (218, 30121), (228, 30205), (236, 30262),

Gene: Prager\_57 Start: 43175, Stop: 44305, Start Num: 49

Candidate Starts for Prager\_57:

(5, 42845), (6, 42875), (10, 42938), (Start: 37 @43127 has 44 MA's), (Start: 49 @43175 has 3 MA's), (54, 43214), (57, 43226), (69, 43325), (81, 43388), (92, 43442), (100, 43490), (114, 43556), (143, 43670), (145, 43697), (150, 43727), (159, 43772), (208, 44006), (217, 44072), (220, 44081), (222, 44090), (238, 44216), (251, 44297),

Gene: Predator\_68 Start: 49458, Stop: 50774, Start Num: 22

Candidate Starts for Predator\_68:

(12, 49386), (13, 49425), (14, 49434), (Start: 22 @49458 has 1 MA's), (Start: 26 @49473 has 7 MA's), (55, 49578), (56, 49584), (58, 49596), (68, 49686), (92, 49818), (95, 49833), (100, 49869), (110, 49932), (115, 49971), (119, 49980), (128, 50022), (133, 50052), (136, 50061), (141, 50106), (151, 50172), (156, 50199), (159, 50214), (166, 50274), (184, 50337), (197, 50382), (207, 50436), (211, 50454), (219, 50514), (225, 50550), (232, 50625), (236, 50646), (238, 50652), (242, 50691), (250, 50727), (252, 50739),

Gene: Puissant\_69 Start: 49917, Stop: 51227, Start Num: 27

Candidate Starts for Puissant\_69:

(9, 49746), (13, 49866), (14, 49875), (Start: 22 @49899 has 1 MA's), (27, 49917), (55, 50019), (58, 50037), (91, 50253), (92, 50259), (98, 50289), (100, 50310), (124, 50457), (128, 50475), (129, 50478), (131, 50493), (133, 50505), (136, 50514), (154, 50646), (156, 50652), (166, 50727), (172, 50778), (197, 50835), (219, 50967), (225, 51003), (232, 51078),

Gene: Rachella\_43 Start: 28867, Stop: 30000, Start Num: 46

Candidate Starts for Rachella\_43:

(1, 28447), (Start: 39 @28846 has 38 MA's), (Start: 46 @28867 has 1 MA's), (56, 28936), (77, 29077), (92, 29140), (108, 29236), (134, 29341), (159, 29491), (170, 29581), (181, 29617), (192, 29647), (211, 29752), (218, 29809), (228, 29893), (236, 29950),

Gene: Ranch\_65 Start: 42668, Stop: 43885, Start Num: 40

Candidate Starts for Ranch\_65:

(Start: 40 @42668 has 34 MA's), (45, 42683), (64, 42812), (75, 42902), (76, 42905), (84, 42941), (92, 42974), (120, 43088), (127, 43115), (134, 43154), (137, 43169), (142, 43199), (145, 43229), (150, 43259), (158, 43301), (211, 43598), (217, 43652), (220, 43661), (222, 43670), (225, 43694), (235, 43787), (251, 43877),

Gene: Rie18\_43 Start: 28391, Stop: 29497, Start Num: 39

Candidate Starts for Rie18\_43:

(Start: 39 @28391 has 38 MA's), (Start: 46 @28412 has 1 MA's), (77, 28622), (92, 28685), (108, 28781), (134, 28886), (159, 29036), (211, 29249), (228, 29390), (236, 29447),

Gene: RikSengupta\_46 Start: 29769, Stop: 30920, Start Num: 17

Candidate Starts for RikSengupta\_46:

(Start: 17 @29769 has 1 MA's), (Start: 42 @29823 has 2 MA's), (44, 29826), (Start: 46 @29832 has 1 MA's), (77, 30042), (78, 30048), (90, 30093), (92, 30105), (103, 30168), (108, 30201), (134, 30306), (161, 30468), (199, 30603), (206, 30627), (230, 30819), (236, 30867),

Gene: Riparian\_71 Start: 51165, Stop: 52334, Start Num: 40

Candidate Starts for Riparian\_71:

(Start: 40 @51165 has 34 MA's), (45, 51180), (51, 51222), (57, 51255), (89, 51456), (92, 51471), (120, 51603), (134, 51666), (137, 51681), (150, 51771), (155, 51798), (199, 51999), (201, 52005), (203, 52011), (218, 52122), (220, 52128), (236, 52260), (246, 52320),

Gene: Rooney\_66 Start: 47314, Stop: 46316, Start Num: 41

Candidate Starts for Rooney\_66:

(Start: 41 @47314 has 7 MA's), (45, 47302), (92, 47023), (93, 47020), (121, 46891), (129, 46864), (134, 46828), (145, 46753), (147, 46741), (159, 46678), (208, 46579), (214, 46537), (220, 46504), (222, 46495), (228, 46423), (229, 46417), (241, 46333),

Gene: Rope\_69 Start: 51321, Stop: 52490, Start Num: 40

Candidate Starts for Rope\_69:

(Start: 40 @51321 has 34 MA's), (45, 51336), (51, 51378), (57, 51411), (89, 51612), (92, 51627), (120, 51759), (134, 51822), (137, 51837), (150, 51927), (155, 51954), (199, 52155), (201, 52161), (203, 52167), (218, 52278), (220, 52284), (236, 52416), (246, 52476),

Gene: Rumi\_66 Start: 42355, Stop: 43572, Start Num: 40

Candidate Starts for Rumi\_66:

(Start: 40 @42355 has 34 MA's), (45, 42370), (64, 42499), (75, 42589), (76, 42592), (84, 42628), (92, 42661), (120, 42775), (127, 42802), (134, 42841), (137, 42856), (142, 42886), (145, 42916), (150, 42946), (160, 42994), (192, 43183), (217, 43339), (220, 43348), (222, 43357), (225, 43381), (230, 43435), (235, 43474), (251, 43564),

Gene: Sadboi\_66 Start: 44538, Stop: 45701, Start Num: 40

Candidate Starts for Sadboi\_66:

(Start: 40 @44538 has 34 MA's), (45, 44553), (64, 44682), (75, 44772), (76, 44775), (84, 44811), (92, 44844), (120, 44958), (127, 44985), (134, 45024), (137, 45039), (142, 45069), (145, 45099), (150, 45129), (160, 45177), (168, 45252), (180, 45273), (192, 45312), (211, 45414), (217, 45468), (220, 45477), (222, 45486), (225, 45510), (235, 45603), (251, 45693),

Gene: Sampudon\_65 Start: 44890, Stop: 46053, Start Num: 40

Candidate Starts for Sampudon\_65:

(Start: 40 @44890 has 34 MA's), (45, 44905), (64, 45034), (75, 45124), (76, 45127), (84, 45163), (92, 45196), (120, 45310), (127, 45337), (134, 45376), (137, 45391), (142, 45421), (145, 45451), (150, 45481), (160, 45529), (192, 45664), (211, 45766), (217, 45820), (220, 45829), (222, 45838), (225, 45862), (235, 45955), (251, 46045),

Gene: Send513\_69 Start: 51699, Stop: 52868, Start Num: 40

Candidate Starts for Send513\_69:

(Start: 40 @51699 has 34 MA's), (45, 51714), (51, 51756), (57, 51789), (89, 51990), (92, 52005), (120, 52137), (134, 52200), (137, 52215), (155, 52332), (199, 52533), (201, 52539), (203, 52545), (218, 52656), (220, 52662), (236, 52794), (246, 52854),

Gene: ShakeNBake\_66 Start: 47186, Stop: 46188, Start Num: 41

Candidate Starts for ShakeNBake\_66:

(23, 47237), (Start: 41 @47186 has 7 MA's), (45, 47174), (92, 46895), (93, 46892), (121, 46763), (129, 46736), (134, 46700), (145, 46625), (147, 46613), (159, 46550), (214, 46409), (220, 46376), (222, 46367), (228, 46295), (229, 46289), (241, 46205),

Gene: SirHarley\_59 Start: 43598, Stop: 44728, Start Num: 49

Candidate Starts for SirHarley\_59:

(16, 43505), (28, 43532), (29, 43535), (Start: 37 @43550 has 44 MA's), (Start: 49 @43598 has 3 MA's), (54, 43637), (57, 43649), (69, 43748), (81, 43811), (92, 43865), (100, 43913), (114, 43979), (143, 44093), (145, 44120), (150, 44150), (159, 44195), (208, 44429), (217, 44495), (220, 44504), (222, 44513), (238, 44639), (251, 44720),

Gene: Skysand\_68 Start: 53458, Stop: 52295, Start Num: 47

Candidate Starts for Skysand\_68:

(Start: 47 @53458 has 2 MA's), (69, 53287), (85, 53194), (86, 53191), (87, 53188), (92, 53161), (96, 53143), (104, 53086), (147, 52891), (148, 52888), (150, 52873), (160, 52825), (176, 52711), (179, 52699), (192, 52651), (203, 52603), (211, 52549), (220, 52486), (222, 52477), (235, 52357),

Gene: Snakehole\_43 Start: 28023, Stop: 29177, Start Num: 39

Candidate Starts for Snakehole\_43:

(1, 27624), (Start: 39 @28023 has 38 MA's), (Start: 46 @28044 has 1 MA's), (77, 28254), (92, 28317), (108, 28413), (134, 28518), (159, 28668), (181, 28794), (192, 28824), (211, 28929), (218, 28986), (228, 29070), (236, 29127),

Gene: Sparcetus\_46 Start: 29700, Stop: 30797, Start Num: 42

Candidate Starts for Sparcetus\_46:

(20, 29652), (Start: 42 @29700 has 2 MA's), (44, 29703), (Start: 46 @29709 has 1 MA's), (77, 29919), (78, 29925), (90, 29970), (92, 29982), (103, 30045), (108, 30078), (134, 30183), (161, 30345), (199, 30480), (206, 30504), (230, 30696), (236, 30744),

Gene: StarStruck\_67 Start: 53139, Stop: 51931, Start Num: 39

Candidate Starts for StarStruck\_67:

(Start: 39 @53139 has 38 MA's), (45, 53121), (72, 52917), (79, 52893), (86, 52854), (87, 52851), (92, 52824), (104, 52749), (127, 52662), (147, 52536), (160, 52470), (174, 52359), (188, 52311), (203, 52242), (211, 52188), (217, 52134), (220, 52125), (222, 52116), (233, 52008), (235, 51996),

Gene: Stickynote\_69 Start: 50521, Stop: 49409, Start Num: 43

Candidate Starts for Stickynote\_69:

(Start: 43 @50521 has 10 MA's), (70, 50335), (92, 50221), (99, 50179), (104, 50146), (122, 50083), (124, 50074), (127, 50065), (134, 50029), (142, 49975), (168, 49792), (216, 49603), (220, 49582), (224, 49552), (231, 49480), (234, 49465), (235, 49456),

Gene: Sukkupi\_67 Start: 51527, Stop: 50328, Start Num: 39

Candidate Starts for Sukkupi\_67:

(Start: 39 @51527 has 38 MA's), (72, 51308), (79, 51284), (85, 51248), (86, 51245), (87, 51242), (92, 51215), (96, 51197), (104, 51140), (145, 50942), (160, 50864), (170, 50777), (192, 50684), (195, 50669), (202, 50639), (203, 50636), (206, 50624), (211, 50582), (220, 50519), (222, 50510), (232, 50408), (233, 50402),

Gene: SuperSulley\_68 Start: 53499, Stop: 52291, Start Num: 39

Candidate Starts for SuperSulley\_68:

(Start: 39 @53499 has 38 MA's), (72, 53277), (79, 53253), (86, 53214), (87, 53211), (92, 53184), (96, 53166), (104, 53109), (147, 52896), (160, 52830), (174, 52719), (188, 52671), (206, 52590), (211, 52548), (217, 52494), (220, 52485), (222, 52476), (233, 52368),

Gene: Tedro\_43 Start: 28325, Stop: 29431, Start Num: 39

Candidate Starts for Tedro\_43:

(1, 27932), (4, 28013), (Start: 39 @28325 has 38 MA's), (Start: 46 @28346 has 1 MA's), (77, 28556), (92, 28619), (108, 28715), (134, 28820), (159, 28970), (211, 29183), (218, 29240), (228, 29324), (236, 29381),

Gene: Thoth\_57 Start: 43106, Stop: 44284, Start Num: 37

Candidate Starts for Thoth\_57:

(5, 42824), (6, 42854), (10, 42917), (Start: 37 @43106 has 44 MA's), (Start: 49 @43154 has 3 MA's), (54, 43193), (57, 43205), (69, 43304), (81, 43367), (92, 43421), (100, 43469), (114, 43535), (143, 43649), (145, 43676), (150, 43706), (159, 43751), (208, 43985), (217, 44051), (220, 44060), (222, 44069), (238, 44195), (251, 44276),



Gene: Thumb\_68 Start: 50115, Stop: 51404, Start Num: 26

Candidate Starts for Thumb\_68:

(14, 50076), (Start: 22 @50100 has 1 MA's), (Start: 26 @50115 has 7 MA's), (55, 50229), (57, 50238), (58, 50247), (63, 50289), (91, 50463), (92, 50469), (100, 50520), (124, 50634), (128, 50652), (129, 50655), (131, 50670), (136, 50691), (154, 50823), (156, 50829), (184, 50967), (197, 51012), (203, 51030), (211, 51084), (219, 51144), (225, 51180), (236, 51276),

Gene: Tillicus\_61 Start: 43238, Stop: 44398, Start Num: 40

Candidate Starts for Tillicus\_61:

(Start: 40 @43238 has 34 MA's), (45, 43253), (64, 43382), (74, 43466), (87, 43517), (92, 43544), (120, 43658), (127, 43685), (134, 43721), (137, 43736), (139, 43751), (142, 43766), (145, 43796), (160, 43874), (167, 43934), (173, 43961), (192, 44009), (193, 44015), (212, 44117), (217, 44165), (220, 44174), (225, 44207), (235, 44300), (251, 44390),

Gene: TinyMiny\_46 Start: 29721, Stop: 30818, Start Num: 42

Candidate Starts for TinyMiny\_46:

(Start: 17 @29667 has 1 MA's), (Start: 42 @29721 has 2 MA's), (44, 29724), (Start: 46 @29730 has 1 MA's), (77, 29940), (78, 29946), (90, 29991), (92, 30003), (103, 30066), (108, 30099), (134, 30204), (161, 30366), (199, 30501), (206, 30525), (230, 30717), (236, 30765),

Gene: Tracker\_66 Start: 52125, Stop: 50926, Start Num: 37

Candidate Starts for Tracker\_66:

(Start: 37 @52125 has 44 MA's), (86, 51837), (87, 51834), (91, 51813), (92, 51807), (145, 51534), (147, 51522), (150, 51504), (157, 51471), (160, 51456), (170, 51369), (192, 51282), (201, 51240), (202, 51237), (203, 51234), (211, 51180), (218, 51123), (219, 51120), (220, 51117), (222, 51108), (233, 51000), (239, 50976),

Gene: Troll4\_57 Start: 43237, Stop: 44415, Start Num: 37

Candidate Starts for Troll4\_57:

(5, 42955), (6, 42985), (10, 43048), (Start: 37 @43237 has 44 MA's), (Start: 49 @43285 has 3 MA's), (54, 43324), (57, 43336), (69, 43435), (81, 43498), (92, 43552), (100, 43600), (114, 43666), (143, 43780), (145, 43807), (150, 43837), (159, 43882), (208, 44116), (217, 44182), (220, 44191), (222, 44200), (238, 44326), (251, 44407),

Gene: Turuncu\_69 Start: 52823, Stop: 51867, Start Num: 73

Candidate Starts for Turuncu\_69:

(Start: 73 @52823 has 1 MA's), (80, 52799), (86, 52763), (92, 52733), (100, 52685), (117, 52622), (160, 52403), (170, 52316), (174, 52292), (188, 52244), (203, 52175), (220, 52058), (222, 52049), (223, 52034), (239, 51917),

Gene: Visconti\_58 Start: 43117, Stop: 44295, Start Num: 37

Candidate Starts for Visconti\_58:

(5, 42835), (6, 42865), (10, 42928), (Start: 37 @43117 has 44 MA's), (Start: 49 @43165 has 3 MA's), (54, 43204), (57, 43216), (69, 43315), (81, 43378), (92, 43432), (100, 43480), (114, 43546), (143, 43660), (145, 43687), (150, 43717), (159, 43762), (208, 43996), (217, 44062), (220, 44071), (222, 44080), (238, 44206), (251, 44287),

Gene: WaldoWhy\_59 Start: 43170, Stop: 44348, Start Num: 37

Candidate Starts for WaldoWhy\_59:

(5, 42888), (6, 42918), (10, 42981), (Start: 37 @43170 has 44 MA's), (Start: 49 @43218 has 3 MA's), (54, 43257), (57, 43269), (69, 43368), (81, 43431), (92, 43485), (100, 43533), (114, 43599), (143, 43713), (145, 43740), (150, 43770), (159, 43815), (208, 44049), (217, 44115), (220, 44124), (222,

44133), (238, 44259), (251, 44340),

Gene: Weiss13\_69 Start: 51402, Stop: 52571, Start Num: 40

Candidate Starts for Weiss13\_69:

(Start: 40 @51402 has 34 MA's), (45, 51417), (51, 51459), (57, 51492), (89, 51693), (92, 51708), (120, 51840), (134, 51903), (137, 51918), (150, 52008), (155, 52035), (199, 52236), (201, 52242), (203, 52248), (218, 52359), (220, 52365), (236, 52497), (246, 52557),

Gene: Wentworth\_66 Start: 47288, Stop: 46290, Start Num: 41

Candidate Starts for Wentworth\_66:

(23, 47339), (Start: 41 @47288 has 7 MA's), (45, 47276), (92, 46997), (93, 46994), (109, 46898), (129, 46838), (134, 46802), (145, 46727), (147, 46715), (157, 46664), (159, 46652), (214, 46511), (220, 46478), (222, 46469), (228, 46397), (229, 46391), (232, 46367),

Gene: Wheezy\_66 Start: 52339, Stop: 51140, Start Num: 37

Candidate Starts for Wheezy\_66:

(Start: 37 @52339 has 44 MA's), (86, 52051), (87, 52048), (91, 52027), (92, 52021), (145, 51748), (147, 51736), (150, 51718), (157, 51685), (160, 51670), (170, 51583), (192, 51496), (202, 51451), (203, 51448), (218, 51337), (219, 51334), (220, 51331), (222, 51322), (229, 51244), (233, 51214), (239, 51190),

Gene: WhoseManz\_67 Start: 49542, Stop: 48343, Start Num: 39

Candidate Starts for WhoseManz\_67:

(Start: 39 @49542 has 38 MA's), (72, 49323), (79, 49299), (86, 49260), (87, 49257), (92, 49230), (96, 49212), (104, 49155), (145, 48957), (160, 48879), (163, 48852), (169, 48795), (170, 48792), (192, 48699), (202, 48654), (203, 48651), (206, 48639), (211, 48597), (220, 48534), (222, 48525), (232, 48423), (233, 48417), (239, 48393),

Gene: Wilkos\_68 Start: 47443, Stop: 46445, Start Num: 41

Candidate Starts for Wilkos\_68:

(23, 47494), (Start: 41 @47443 has 7 MA's), (45, 47431), (92, 47152), (93, 47149), (121, 47020), (129, 46993), (134, 46957), (145, 46882), (147, 46870), (157, 46819), (159, 46807), (214, 46666), (220, 46633), (222, 46624), (228, 46552), (229, 46546), (232, 46522),

Gene: Wojtek\_61 Start: 42920, Stop: 44134, Start Num: 40

Candidate Starts for Wojtek\_61:

(Start: 40 @42920 has 34 MA's), (45, 42935), (64, 43064), (74, 43148), (87, 43199), (92, 43226), (120, 43340), (127, 43367), (137, 43418), (139, 43433), (142, 43448), (145, 43478), (160, 43556), (192, 43745), (212, 43853), (217, 43901), (220, 43910), (225, 43943), (235, 44036), (251, 44126),

Gene: Wollypog\_46 Start: 33478, Stop: 34599, Start Num: 43

Candidate Starts for Wollypog\_46:

(Start: 43 @33478 has 10 MA's), (71, 33679), (74, 33697), (88, 33751), (92, 33769), (104, 33844), (145, 34045), (146, 34054), (170, 34210), (190, 34234), (192, 34246), (193, 34252), (201, 34288), (228, 34498), (236, 34549),

Gene: Xenia2\_63 Start: 42310, Stop: 43470, Start Num: 40

Candidate Starts for Xenia2\_63:

(30, 42286), (Start: 40 @42310 has 34 MA's), (45, 42322), (64, 42451), (75, 42541), (76, 42544), (87, 42586), (92, 42613), (95, 42628), (106, 42694), (127, 42754), (137, 42808), (142, 42838), (145, 42868), (158, 42940), (171, 43033), (178, 43042), (193, 43087), (210, 43180), (217, 43237), (220, 43246), (222, 43255), (225, 43279), (235, 43372),

Gene: Yara\_62 Start: 46145, Stop: 45150, Start Num: 43

Candidate Starts for Yara\_62:

(Start: 43 @46145 has 10 MA's), (45, 46136), (92, 45857), (93, 45854), (129, 45698), (134, 45662), (138, 45635), (145, 45587), (147, 45575), (157, 45524), (159, 45512), (211, 45401), (214, 45371), (220, 45338), (222, 45329), (228, 45257), (232, 45227),

Gene: Yelo\_68 Start: 51781, Stop: 52950, Start Num: 40

Candidate Starts for Yelo\_68:

(Start: 40 @51781 has 34 MA's), (45, 51796), (51, 51838), (57, 51871), (89, 52072), (92, 52087), (109, 52186), (120, 52219), (134, 52282), (137, 52297), (150, 52387), (155, 52414), (199, 52615), (201, 52621), (203, 52627), (218, 52738), (220, 52744), (236, 52876), (246, 52936),

Gene: Yikes\_67 Start: 44984, Stop: 46147, Start Num: 40

Candidate Starts for Yikes\_67:

(Start: 40 @44984 has 34 MA's), (45, 44999), (64, 45128), (75, 45218), (76, 45221), (84, 45257), (92, 45290), (120, 45404), (127, 45431), (134, 45470), (137, 45485), (142, 45515), (145, 45545), (150, 45575), (160, 45623), (168, 45698), (180, 45719), (192, 45758), (211, 45860), (217, 45914), (220, 45923), (222, 45932), (225, 45956), (235, 46049), (251, 46139),

Gene: Yndexa\_67 Start: 51527, Stop: 50328, Start Num: 39

Candidate Starts for Yndexa\_67:

(Start: 39 @51527 has 38 MA's), (72, 51308), (79, 51284), (85, 51248), (86, 51245), (87, 51242), (92, 51215), (96, 51197), (104, 51140), (145, 50942), (160, 50864), (170, 50777), (192, 50684), (195, 50669), (202, 50639), (203, 50636), (206, 50624), (211, 50582), (220, 50519), (222, 50510), (232, 50408), (233, 50402),

Gene: Zany\_63 Start: 44385, Stop: 45548, Start Num: 40

Candidate Starts for Zany\_63:

(Start: 40 @44385 has 34 MA's), (45, 44400), (64, 44529), (75, 44619), (76, 44622), (84, 44658), (92, 44691), (120, 44805), (127, 44832), (134, 44871), (137, 44886), (142, 44916), (145, 44946), (150, 44976), (160, 45024), (192, 45159), (211, 45261), (217, 45315), (220, 45324), (222, 45333), (225, 45357), (235, 45450), (251, 45540),

Gene: Zenon\_71 Start: 51725, Stop: 52894, Start Num: 40

Candidate Starts for Zenon\_71:

(Start: 40 @51725 has 34 MA's), (45, 51740), (51, 51782), (57, 51815), (89, 52016), (92, 52031), (120, 52163), (134, 52226), (137, 52241), (155, 52358), (199, 52559), (201, 52565), (203, 52571), (218, 52682), (220, 52688), (236, 52820), (246, 52880),

Gene: Zion\_69 Start: 50318, Stop: 49200, Start Num: 43

Candidate Starts for Zion\_69:

(Start: 43 @50318 has 10 MA's), (63, 50183), (70, 50132), (81, 50069), (92, 50018), (99, 49976), (104, 49943), (108, 49922), (122, 49880), (124, 49871), (127, 49862), (134, 49826), (142, 49772), (168, 49589), (216, 49400), (220, 49379), (224, 49349), (231, 49277), (234, 49262), (235, 49253),