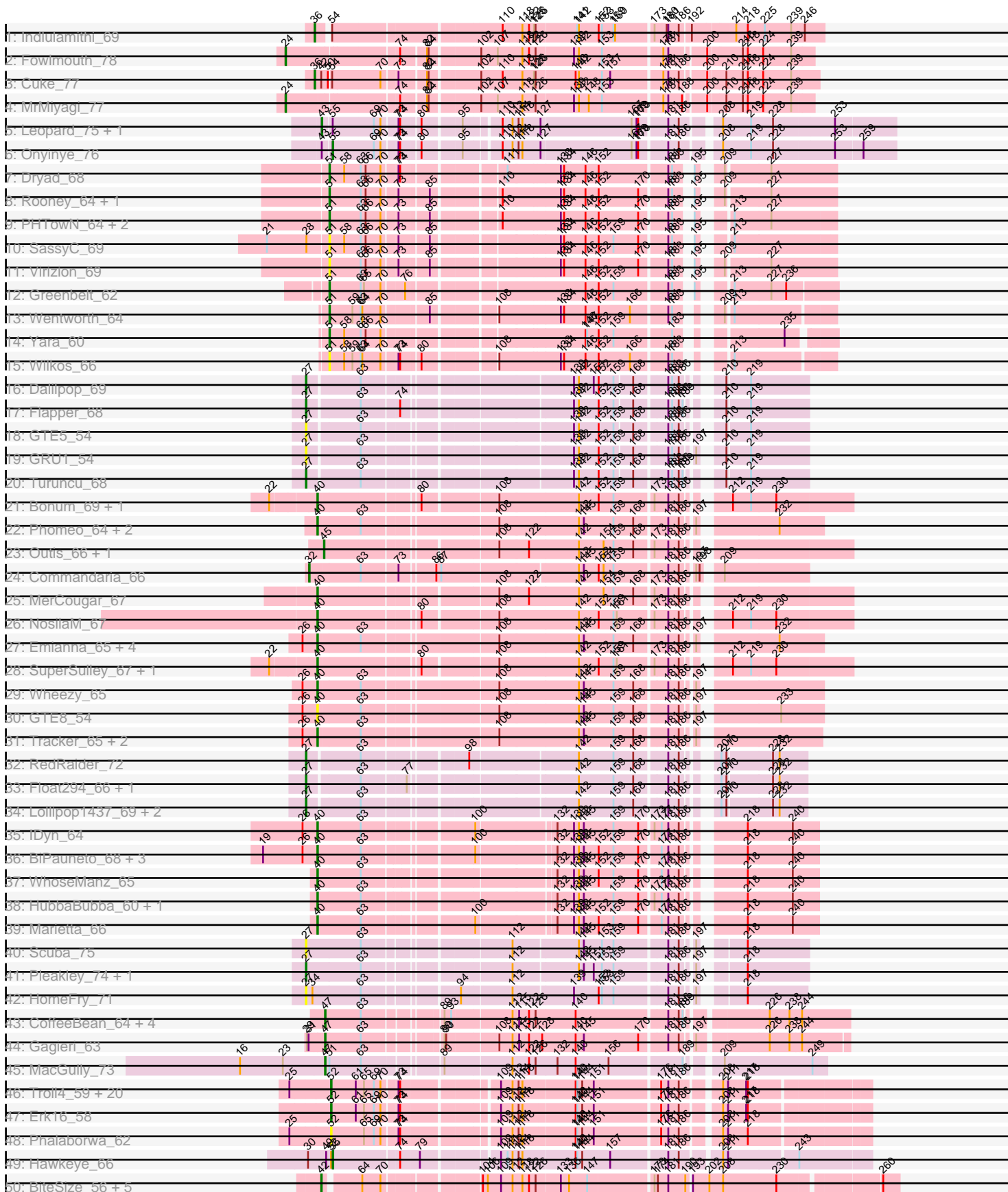
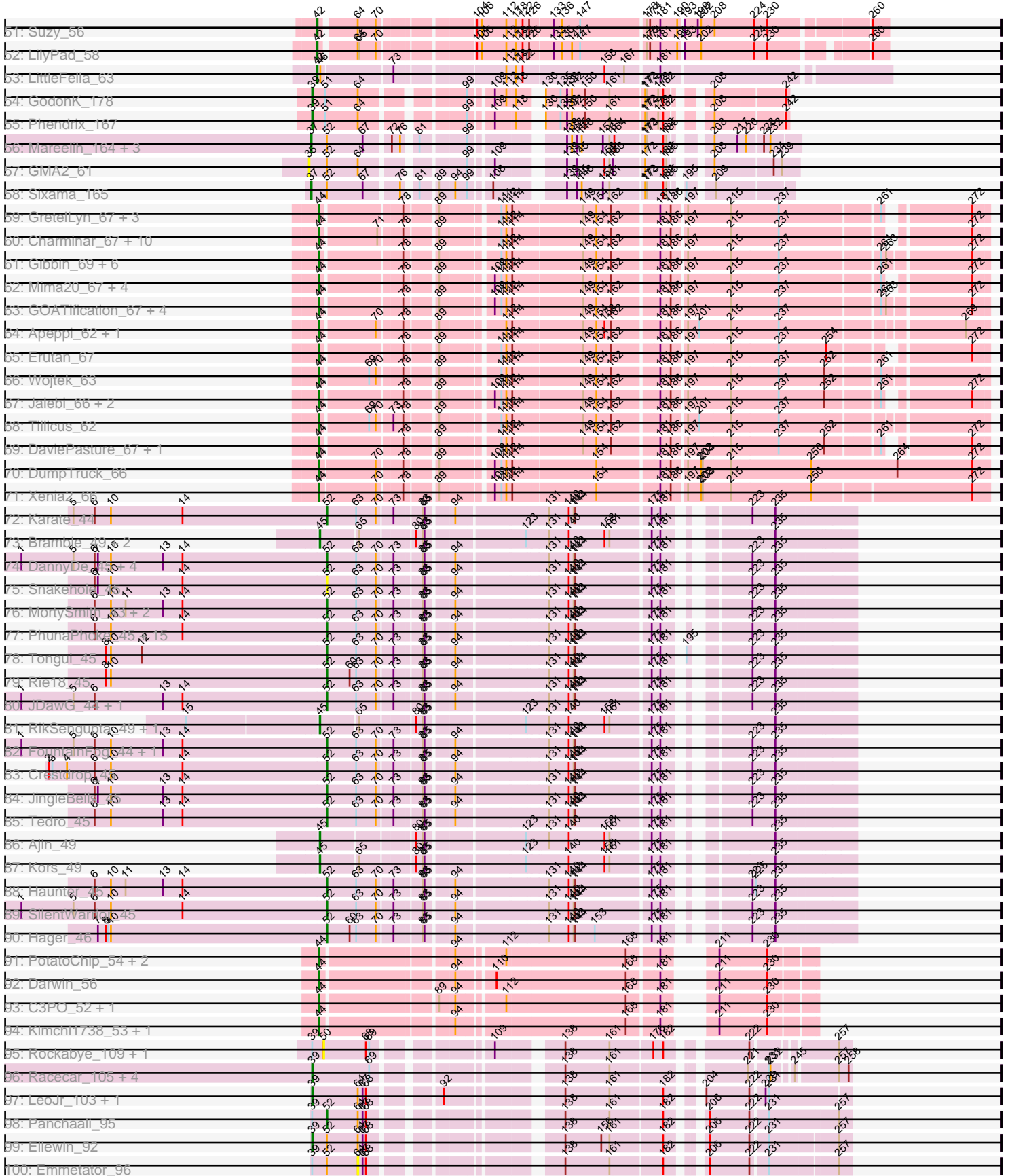


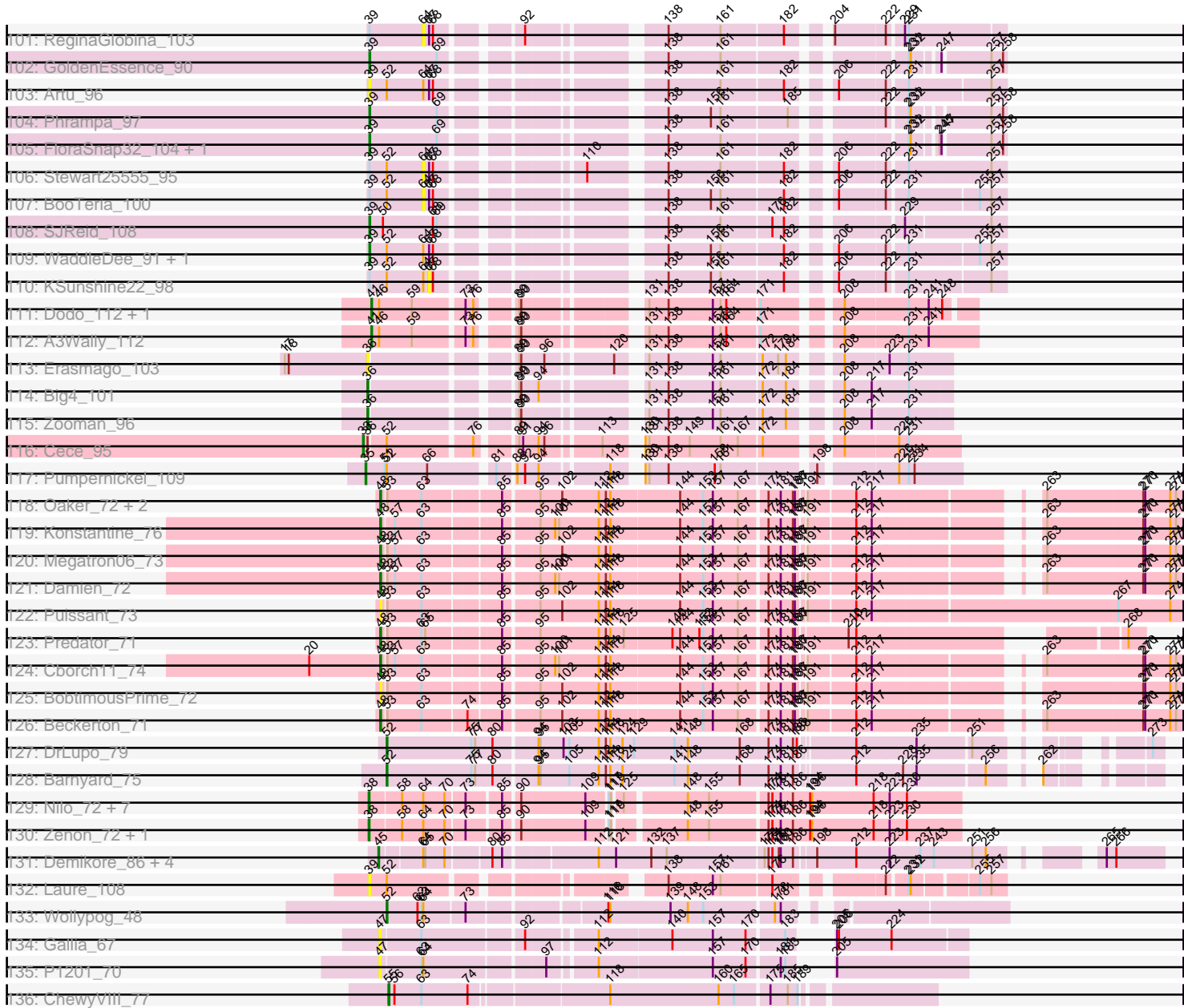
Pham 296190



Pham 296190



Pham 296190



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 296190 Report

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

Pham number 296190 has 275 members, 43 are drafts.

Phages represented in each track:

- Track 1 : Indlulamithi\_69
- Track 2 : Fowlmouth\_78
- Track 3 : Cuke\_77
- Track 4 : MrMiyagi\_77
- Track 5 : Leopard\_75, Aikoy\_76
- Track 6 : Onyinye\_76
- Track 7 : Dryad\_68
- Track 8 : Rooney\_64, Gibson\_64
- Track 9 : PHTowN\_64, Lizz\_64, ShakeNBake\_64
- Track 10 : SassyC\_69
- Track 11 : Virizion\_69
- Track 12 : Greenbelt\_62
- Track 13 : Wentworth\_64
- Track 14 : Yara\_60
- Track 15 : Wilkos\_66
- Track 16 : Dalilpop\_69
- Track 17 : Flapper\_68
- Track 18 : GTE5\_54
- Track 19 : GRU1\_54
- Track 20 : Turuncu\_68
- Track 21 : Bonum\_69, Kabluna\_68
- Track 22 : Phomeo\_64, Jifall16\_64, KidneyBean\_65
- Track 23 : Outis\_66, StarStruck\_66
- Track 24 : Commandaria\_66
- Track 25 : MerCougar\_67
- Track 26 : NosilaM\_67
- Track 27 : Emianna\_65, NatB6\_65, Kurt\_65, NovumRegina\_65, GrootJr\_67
- Track 28 : SuperSulley\_67, Buggaboo\_67
- Track 29 : Wheezy\_65
- Track 30 : GTE8\_54
- Track 31 : Tracker\_65, Arti\_64, Foxboro\_66
- Track 32 : RedRaider\_72
- Track 33 : Float294\_66, Skysand\_67
- Track 34 : Lollipop1437\_69, Ennea\_72, Patio\_67
- Track 35 : IDyn\_64
- Track 36 : BiPauneto\_68, Yndexa\_66, Sukkupi\_66, Pemberton\_68
- Track 37 : WhoseManz\_65

- Track 38 : HubbaBubba\_60, NadineRae\_65
- Track 39 : Marietta\_66
- Track 40 : Scuba\_75
- Track 41 : Pleakley\_74, Fury\_74
- Track 42 : HomeFry\_71
- Track 43 : CoffeeBean\_64, Maselop\_64, Apiary\_64, Braxoaddie\_64, Polyuyuki\_64
- Track 44 : Gagieri\_63
- Track 45 : MacGully\_73
- Track 46 : Troll4\_59, Thoth\_59, BigMama\_57, Prager\_59, Helpful\_62, Penelope2018\_59, SuperheroCarly\_60, Visconti\_60, Adjutor\_58, PBI1\_56, PLOT\_59, Delton\_60, WaldoWhy\_61, Gumball\_59, Butterscotch\_58, SirHarley\_61, KandZ\_58, Mopey\_60, Chill\_61, Giuseppe\_60, Nova\_58
- Track 47 : Erk16\_58
- Track 48 : Phalaborwa\_62
- Track 49 : Hawkeye\_66
- Track 50 : BiteSize\_56, Terapin\_57, Beyoncage\_56, Sienna\_56, Djokovic\_56, Madi\_56
- Track 51 : Suzy\_56
- Track 52 : LilyPad\_58
- Track 53 : LittleFella\_63
- Track 54 : GodonK\_178
- Track 55 : Phendrix\_167
- Track 56 : Mareelih\_164, Forza\_167, Boopy\_166, BlueNGold\_163
- Track 57 : GMA2\_61
- Track 58 : Sixama\_165
- Track 59 : GretelLyn\_67, Sadboi\_68, Yikes\_69, Zany\_65
- Track 60 : Charminar\_67, Alyssamiracle\_70, Jamemuya19\_66, Astralis\_67, NovaSharks\_69, Riduram\_67, Genamy16\_70, Avian\_65, Stormer\_67, RazorC\_67, Rumi\_68
- Track 61 : Gibbin\_69, Patos\_71, Ranch\_67, NorManre\_71, Lambo\_65, ParvusTarda\_66, Lila22\_68
- Track 62 : Mima20\_67, DoobyDoo\_66, Pywacket\_64, LavAbarElk\_67, Alephilan\_68
- Track 63 : GOATification\_67, Rukungu\_69, BirthdayBoy\_69, OtterstedtS21\_67, Fulcrum\_67
- Track 64 : Apeppi\_62, LuckyLeo\_64
- Track 65 : Erutan\_67
- Track 66 : Wojtek\_63
- Track 67 : Jalebi\_66, MoiGyank\_70, Sampudon\_67
- Track 68 : Tillicus\_62
- Track 69 : DaviePasture\_67, Rota\_64
- Track 70 : DumpTruck\_66
- Track 71 : Xenia2\_66
- Track 72 : Karate\_44
- Track 73 : Bramble\_49, Sparcetus\_49, LordBart\_49
- Track 74 : DannyDe\_45, FreddieHg\_45, Chivey\_45, Hiddenleaf\_45, Annapurna\_45
- Track 75 : Snakehole\_45
- Track 76 : MortySmith\_43, Dauntless\_44, Erudite\_44
- Track 77 : PhunaPhoke\_45, AnnaSerena\_45, Pharpay\_45, Kate\_46, NarutoRun\_45, Cybele\_45, Gilda\_45, Anakin\_45, CoolCookie\_45, Rachella\_45, Krampus\_45, Neptune\_45, OhDear\_45, Potty\_45, OverHedge\_45, Artiphact\_45
- Track 78 : Tongui\_45
- Track 79 : Rie18\_45
- Track 80 : JDawG\_44, Aesir\_44

- Track 81 : RikSengupta\_49, TinyMiny\_49
- Track 82 : FountainFog\_44, Poultruss\_44
- Track 83 : Crestdrop\_45
- Track 84 : JingleBells\_45
- Track 85 : Tedro\_45
- Track 86 : Ajin\_49
- Track 87 : Kors\_49
- Track 88 : Haunter\_45
- Track 89 : SilentWarrior\_45
- Track 90 : Hager\_46
- Track 91 : PotatoChip\_54, Zion\_54, PeteyPab\_53
- Track 92 : Darwin\_56
- Track 93 : C3PO\_52, Cruella\_52
- Track 94 : Kimchi1738\_53, Stickynote\_54
- Track 95 : Rockabye\_109, Chilliams\_103
- Track 96 : Racecar\_105, Bloom\_108, Mimi\_104, FrostedClock\_107, Talia1610\_104
- Track 97 : LeoJr\_103, Atuin\_98
- Track 98 : Panchaali\_95
- Track 99 : Ellewin\_92
- Track 100 : Emmetator\_96
- Track 101 : ReginaGlobina\_103
- Track 102 : GoldenEssence\_90
- Track 103 : Artu\_96
- Track 104 : Phrampa\_97
- Track 105 : FloraSnap32\_104, Patbob\_103
- Track 106 : Stewart25555\_95
- Track 107 : BooTeria\_100
- Track 108 : SJReid\_108
- Track 109 : WaddleDee\_91, DunneganBoMo\_93
- Track 110 : KSunshine22\_98
- Track 111 : Dodo\_112, PauloDiaboli\_112
- Track 112 : A3Wally\_112
- Track 113 : Erasmago\_103
- Track 114 : Big4\_101
- Track 115 : Zooman\_96
- Track 116 : Cece\_95
- Track 117 : Pumpernickel\_109
- Track 118 : Oaker\_72, Phreeze\_71, Thumb\_73
- Track 119 : Konstantine\_76
- Track 120 : Megatron06\_73
- Track 121 : Damien\_72
- Track 122 : Puissant\_73
- Track 123 : Predator\_71
- Track 124 : Cborch11\_74
- Track 125 : BobtimousPrime\_72
- Track 126 : Beckerton\_71
- Track 127 : DrLupo\_79
- Track 128 : Barnyard\_75
- Track 129 : Nilo\_72, Papyrus\_70, Rope\_70, Yelo\_69, Riparian\_72, Candle\_68, Weiss13\_70, MontyDev\_72
- Track 130 : Zenon\_72, Send513\_70
- Track 131 : Demikore\_86, Patience\_85, Labelle\_84, SuperSonics\_88, Madrugua\_83
- Track 132 : Laure\_108

- Track 133 : Wollypog\_48
- Track 134 : Gallia\_67
- Track 135 : P1201\_70
- Track 136 : ChewyVIII\_77

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

The start number called the most often in the published annotations is 52, it was called in 61 of the 232 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Adjutor\_58, Aesir\_44, Anakin\_45, AnnaSerena\_45, Annapurna\_45, Artiphact\_45, Barnyard\_75, BigMama\_57, Butterscotch\_58, Chill\_61, Chivey\_45, CoolCookie\_45, Crestdrop\_45, Cybele\_45, DannyDe\_45, Dauntless\_44, Delton\_60, DrLupo\_79, Erk16\_58, Erudite\_44, FountainFog\_44, FreddieHg\_45, Gilda\_45, Giuseppe\_60, Gumball\_59, Hager\_46, Haunter\_45, Helpful\_62, Hiddenleaf\_45, JDawG\_44, JingleBells\_45, KandZ\_58, Karate\_44, Kate\_46, Krampus\_45, Mopey\_60, MortySmith\_43, NarutoRun\_45, Neptune\_45, Nova\_58, OhDear\_45, OverHedge\_45, PBI1\_56, PLOT\_59, Panchaali\_95, Penelope2018\_59, Phalaborwa\_62, Pharpay\_45, PhunaPhoke\_45, Potty\_45, Poultruss\_44, Prager\_59, Rachella\_45, Rie18\_45, SilentWarrior\_45, SirHarley\_61, Snakehole\_45, SuperheroCarly\_60, Tedro\_45, Thoth\_59, Tongui\_45, Troll4\_59, Visconti\_60, WaldoWhy\_61, Wollypog\_48,

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

- Artu\_96, BlueNGold\_163, BooTeria\_100, Boopy\_166, Cece\_95, DunneganBoMo\_93, Ellewin\_92, Emmetator\_96, Forza\_167, GMA2\_61, Hawkeye\_66, KSunshine22\_98, Laure\_108, Mareelih\_164, Pumpernickel\_109, Sixama\_165, Stewart25555\_95, WaddleDee\_91,

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

- A3Wally\_112, Aikoy\_76, Ajin\_49, Alephlan\_68, Alyssamiracle\_70, Apeppi\_62, Apiary\_64, Arti\_64, Astralis\_67, Atuin\_98, Avian\_65, Beckerton\_71, Beyoncage\_56, BiPauneto\_68, Big4\_101, BirthdayBoy\_69, BiteSize\_56, Bloom\_108, BobtimousPrime\_72, Bonum\_69, Bramble\_49, Braxoaddie\_64, Buggaboo\_67, C3PO\_52, Candle\_68, Cborch11\_74, Charminar\_67, ChewyVIII\_77, Chilliams\_103, CoffeeBean\_64, Commandaria\_66, Cruella\_52, Cuke\_77, Dalilpop\_69, Damien\_72, Darwin\_56, DaviePasture\_67, Demikore\_86, Djokovic\_56, Dodo\_112, DoobyDoo\_66, Dryad\_68, DumpTruck\_66, Emianna\_65, Ennea\_72, Erasmago\_103, Erutan\_67, Flapper\_68, Float294\_66, FloraSnap32\_104, Fowlmouth\_78, Foxboro\_66, FrostedClock\_107, Fulcrum\_67, Fury\_74, GOATification\_67, GRU1\_54, GTE5\_54, GTE8\_54, Gagieri\_63, Gallia\_67, Genamy16\_70, Gibbin\_69, Gibson\_64, GodonK\_178, GoldenEssence\_90, Greenbelt\_62, GretelLyn\_67, GrootJr\_67, HomeFry\_71, HubbaBubba\_60, IDyn\_64, Indlulamithi\_69, Jalebi\_66, Jamemuya19\_66, Jifall16\_64, Kabluna\_68, KidneyBean\_65, Kimchi1738\_53, Konstantine\_76, Kors\_49, Kurt\_65, Labelle\_84, Lambo\_65, LavAbarElk\_67, LeoJr\_103, Leopard\_75, Lila22\_68, LilyPad\_58, LittleFella\_63, Lizz\_64, Lollipop1437\_69, LordBart\_49, LuckyLeo\_64, MacGully\_73, Madi\_56, Madruga\_83, Marietta\_66, Maselop\_64, Megatron06\_73, MerCougar\_67, Mima20\_67, Mimi\_104, MoiGyank\_70, MontyDev\_72, MrMiyagi\_77, NadineRae\_65, NatB6\_65, Nilo\_72, NorManre\_71, NosilaM\_67, NovaSharks\_69, NovumRegina\_65, Oaker\_72,

Onyinye\_76, OtterstedtS21\_67, Outis\_66, P1201\_70, PHTowN\_64, Papyrus\_70, ParvusTarda\_66, Patbob\_103, Patience\_85, Patio\_67, Patos\_71, PauloDiaboli\_112, Pemberton\_68, PeteyPab\_53, Phendrix\_167, Phomeo\_64, Phrampa\_97, Phreeze\_71, Pleakley\_74, Polyuyuki\_64, PotatoChip\_54, Predator\_71, Puissant\_73, Pywacket\_64, Racecar\_105, Ranch\_67, RazorC\_67, RedRaider\_72, ReginaGlobina\_103, Riduram\_67, RikSengupta\_49, Riparian\_72, Rockabye\_109, Rooney\_64, Rope\_70, Rota\_64, Rukungu\_69, Rumi\_68, SJReid\_108, Sadboi\_68, Sampudon\_67, SassyC\_69, Scuba\_75, Send513\_70, ShakeNBake\_64, Sienna\_56, Skysand\_67, Sparcetus\_49, StarStruck\_66, Stickynote\_54, Stormer\_67, Sukkupi\_66, SuperSonics\_88, SuperSulley\_67, Suzy\_56, Talia1610\_104, Terapin\_57, Thumb\_73, Tillicus\_62, TinyMiny\_49, Tracker\_65, Turuncu\_68, Virizion\_69, Weiss13\_70, Wentworth\_64, Wheezy\_65, WhoseManz\_65, Wilkos\_66, Wojtek\_63, Xenia2\_66, Yara\_60, Yelo\_69, Yikes\_69, Yndexa\_66, Zany\_65, Zenon\_72, Zion\_54, Zooman\_96,

### Summary by start number:

#### Start 24:

- Found in 2 of 275 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 2 of 232
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Fowlmouth\_78 (AC), MrMiyagi\_77 (AC),

#### Start 27:

- Found in 15 of 275 ( 5.5% ) of genes in pham
- Manual Annotations of this start: 11 of 232
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Dalilpop\_69 (CR1), Ennea\_72 (CR3), Flapper\_68 (CR1), Float294\_66 (CR3), Fury\_74 (CR5), GRU1\_54 (CR1), GTE5\_54 (CR1), HomeFry\_71 (CR5), Lollipop1437\_69 (CR3), Patio\_67 (CR3), Pleakley\_74 (CR5), RedRaider\_72 (CR3), Scuba\_75 (CR5), Skysand\_67 (CR3), Turuncu\_68 (CR1),

#### Start 32:

- Found in 1 of 275 ( 0.4% ) of genes in pham
- Manual Annotations of this start: 1 of 232
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Commandaria\_66 (CR2),

#### Start 33:

- Found in 1 of 275 ( 0.4% ) of genes in pham
- Manual Annotations of this start: 1 of 232
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Cece\_95 (GD3),

#### Start 35:

- Found in 2 of 275 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 232
- Called 100.0% of time when present
- Phage (with cluster) where this start called: GMA2\_61 (DS), Pumpernickel\_109 (GD4),

#### Start 36:

- Found in 6 of 275 ( 2.2% ) of genes in pham
- Manual Annotations of this start: 4 of 232
- Called 83.3% of time when present
- Phage (with cluster) where this start called: Big4\_101 (GD2), Cuke\_77 (AC), Erasmago\_103 (GD2), Indlulamithi\_69 (AC), Zooman\_96 (GD2),

#### Start 37:

- Found in 5 of 275 ( 1.8% ) of genes in pham
- Manual Annotations of this start: 5 of 232
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BlueNGold\_163 (DS), Boopy\_166 (DS), Forza\_167 (DS), Mareelih\_164 (DS), Sixama\_165 (DS),

#### Start 38:

- Found in 10 of 275 ( 3.6% ) of genes in pham
- Manual Annotations of this start: 9 of 232
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Candle\_68 (R), MontyDev\_72 (R), Nilo\_72 (R), Papyrus\_70 (R), Riparian\_72 (R), Rope\_70 (R), Send513\_70 (R), Weiss13\_70 (R), Yelo\_69 (R), Zenon\_72 (R),

#### Start 39:

- Found in 27 of 275 ( 9.8% ) of genes in pham
- Manual Annotations of this start: 13 of 232
- Called 70.4% of time when present
- Phage (with cluster) where this start called: Artu\_96 (FC), Atuin\_98 (FC), Bloom\_108 (FC), DunneganBoMo\_93 (FC), Ellewin\_92 (FC), FloraSnap32\_104 (FC), FrostedClock\_107 (FC), GodonK\_178 (DK), GoldenEssence\_90 (FC), Laure\_108 (UNK), LeoJr\_103 (FC), Mimi\_104 (FC), Patbob\_103 (FC), Phendrix\_167 (DK), Phrampa\_97 (FC), Racecar\_105 (FC), SJReid\_108 (FC), Talia1610\_104 (FC), WaddleDee\_91 (FC),

#### Start 40:

- Found in 28 of 275 ( 10.2% ) of genes in pham
- Manual Annotations of this start: 26 of 232
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Arti\_64 (CR2), BiPauneto\_68 (CR4), Bonum\_69 (CR2), Buggaboo\_67 (CR2), Emianna\_65 (CR2), Foxboro\_66 (CR2), GTE8\_54 (CR2), GrootJr\_67 (CR2), HubbaBubba\_60 (CR4), IDyn\_64 (CR4), Jifall16\_64 (CR2), Kabluna\_68 (CR2), KidneyBean\_65 (CR2), Kurt\_65 (CR2), Marietta\_66 (CR4), MerCougar\_67 (CR2), NadineRae\_65 (CR4), NatB6\_65 (CR2), NosilaM\_67 (CR2), NovumRegina\_65 (CR2), Pemberton\_68 (CR4), Phomeo\_64 (CR2), Sukkupi\_66 (CR4), SuperSulley\_67 (CR2), Tracker\_65 (CR2), Wheezy\_65 (CR2), WhoseManz\_65 (CR4), Yndexa\_66 (CR4),

#### Start 41:

- Found in 3 of 275 ( 1.1% ) of genes in pham
- Manual Annotations of this start: 2 of 232
- Called 100.0% of time when present
- Phage (with cluster) where this start called: A3Wally\_112 (GD1), Dodo\_112 (GD1), PauloDiaboli\_112 (GD1),

#### Start 42:

- Found in 10 of 275 ( 3.6% ) of genes in pham
- Manual Annotations of this start: 9 of 232
- Called 90.0% of time when present
- Phage (with cluster) where this start called: Beyoncage\_56 (DG1), BiteSize\_56 (DG1), Djokovic\_56 (DG1), LilyPad\_58 (DG1), LittleFella\_63 (DG2), Madi\_56 (DG1), Sienna\_56 (DG1), Suzy\_56 (DG1), Terapin\_57 (DG1),

#### Start 43:

- Found in 3 of 275 ( 1.1% ) of genes in pham
- Manual Annotations of this start: 2 of 232
- Called 66.7% of time when present
- Phage (with cluster) where this start called: Aikoy\_76 (AE), Leopard\_75 (AE),

#### Start 44:

- Found in 52 of 275 ( 18.9% ) of genes in pham
- Manual Annotations of this start: 45 of 232
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Alephilan\_68 (DV), Alyssamiracle\_70 (DV), Apeppi\_62 (DV), Astralis\_67 (DV), Avian\_65 (DV), BirthdayBoy\_69 (DV), C3PO\_52 (EN), Charminar\_67 (DV), Cruella\_52 (EN), Darwin\_56 (EN), DaviePasture\_67 (DV), DoobyDoo\_66 (DV), DumpTruck\_66 (DV), Erutan\_67 (DV), Fulcrum\_67 (DV), GOATification\_67 (DV), Genamy16\_70 (DV), Gibbin\_69 (DV), GretelLyn\_67 (DV), Jalebi\_66 (DV), Jamemuya19\_66 (DV), Kimchi1738\_53 (EN), Lambo\_65 (DV), LavAbarElk\_67 (DV), Lila22\_68 (DV), LuckyLeo\_64 (DV), Mima20\_67 (DV), MoiGyank\_70 (DV), NorManre\_71 (DV), NovaSharks\_69 (DV), OtterstedtS21\_67 (DV), ParvusTarda\_66 (DV), Patos\_71 (DV), PeteyPab\_53 (EN), PotatoChip\_54 (EN), Pywacket\_64 (DV), Ranch\_67 (DV), RazorC\_67 (DV), Riduram\_67 (DV), Rota\_64 (DV), Rukungu\_69 (DV), Rumi\_68 (DV), Sadboi\_68 (DV), Sampudon\_67 (DV), Stickynote\_54 (EN), Stormer\_67 (DV), Tillicus\_62 (DV), Wojtek\_63 (DV), Xenia2\_66 (DV), Yikes\_69 (DV), Zany\_65 (DV), Zion\_54 (EN),

#### Start 45:

- Found in 14 of 275 ( 5.1% ) of genes in pham
- Manual Annotations of this start: 12 of 232
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ajin\_49 (EF), Bramble\_49 (EF), Demikore\_86 (U), Kors\_49 (EF), Labelle\_84 (U), LordBart\_49 (EF), Madrugua\_83 (U), Outis\_66 (CR2), Patience\_85 (U), RikSengupta\_49 (EF), Sparcetus\_49 (EF), StarStruck\_66 (CR2), SuperSonics\_88 (U), TinyMiny\_49 (EF),

#### Start 47:

- Found in 9 of 275 ( 3.3% ) of genes in pham
- Manual Annotations of this start: 7 of 232
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Apiary\_64 (CR6), Braxoaddie\_64 (CR6), CoffeeBean\_64 (CR6), Gagieri\_63 (CR6), Gallia\_67 (singleton), MacGully\_73 (CR7), Maselop\_64 (CR6), P1201\_70 (singleton), Polyuyuki\_64 (CR6),

#### Start 48:

- Found in 11 of 275 ( 4.0% ) of genes in pham
- Manual Annotations of this start: 9 of 232
- Called 100.0% of time when present

- Phage (with cluster) where this start called: Beckerton\_71 (H1), BobtimousPrime\_72 (H1), Cborch11\_74 (H1), Damien\_72 (H1), Konstantine\_76 (H1), Megatron06\_73 (H1), Oaker\_72 (H1), Phreeze\_71 (H1), Predator\_71 (H1), Puissant\_73 (H1), Thumb\_73 (H1),

#### Start 50:

- Found in 4 of 275 ( 1.5% ) of genes in pham
- No Manual Annotations of this start.
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Chilliams\_103 (FC), Rockabye\_109 (FC),

#### Start 51:

- Found in 16 of 275 ( 5.8% ) of genes in pham
- Manual Annotations of this start: 9 of 232
- Called 75.0% of time when present
- Phage (with cluster) where this start called: Dryad\_68 (BN), Gibson\_64 (BN), Greenbelt\_62 (BN), Lizz\_64 (BN), PHTowN\_64 (BN), Rooney\_64 (BN), SassyC\_69 (BN), ShakeNBake\_64 (BN), Virizion\_69 (BN), Wentworth\_64 (BN), Wilkos\_66 (BN), Yara\_60 (BN),

#### Start 52:

- Found in 83 of 275 ( 30.2% ) of genes in pham
- Manual Annotations of this start: 61 of 232
- Called 78.3% of time when present
- Phage (with cluster) where this start called: Adjutor\_58 (D1), Aesir\_44 (EF), Anakin\_45 (EF), AnnaSerena\_45 (EF), Annapurna\_45 (EF), Artiphact\_45 (EF), Barnyard\_75 (H2), BigMama\_57 (D1), Butterscotch\_58 (D1), Chill\_61 (D1), Chivey\_45 (EF), CoolCookie\_45 (EF), Crestdrop\_45 (EF), Cybele\_45 (EF), DannyDe\_45 (EF), Dauntless\_44 (EF), Delton\_60 (D1), DrLupo\_79 (H2), Erk16\_58 (D1), Erudite\_44 (EF), FountainFog\_44 (EF), FreddieHg\_45 (EF), Gilda\_45 (EF), Giuseppe\_60 (D1), Gumball\_59 (D1), Hager\_46 (EF), Haunter\_45 (EF), Helpful\_62 (D1), Hiddenleaf\_45 (EF), JDawG\_44 (EF), JingleBells\_45 (EF), KandZ\_58 (D1), Karate\_44 (EF), Kate\_46 (EF), Krampus\_45 (EF), Mopey\_60 (D1), MortySmith\_43 (EF), NarutoRun\_45 (EF), Neptune\_45 (EF), Nova\_58 (D1), OhDear\_45 (EF), OverHedge\_45 (EF), PBI1\_56 (D1), PLOT\_59 (D1), Panchaali\_95 (FC), Penelope2018\_59 (D1), Phalaborwa\_62 (D1), Pharpay\_45 (EF), PhunaPhoke\_45 (EF), Potty\_45 (EF), Poultruss\_44 (EF), Prager\_59 (D1), Rachella\_45 (EF), Rie18\_45 (EF), SilentWarrior\_45 (EF), SirHarley\_61 (D1), Snakehole\_45 (EF), SuperheroCarly\_60 (D1), Tedro\_45 (EF), Thoth\_59 (D1), Tongui\_45 (EF), Troll4\_59 (D1), Visconti\_60 (D1), WaldoWhy\_61 (D1), Wollypog\_48 (singleton),

#### Start 55:

- Found in 5 of 275 ( 1.8% ) of genes in pham
- Manual Annotations of this start: 3 of 232
- Called 60.0% of time when present
- Phage (with cluster) where this start called: ChewyVIII\_77 (singleton), Hawkeye\_66 (D2), Onyinye\_76 (AE),

#### Start 64:

- Found in 42 of 275 ( 15.3% ) of genes in pham
- No Manual Annotations of this start.
- Called 9.5% of time when present

- Phage (with cluster) where this start called: BooTeria\_100 (FC), Emmetator\_96 (FC), ReginaGlobina\_103 (FC), Stewart25555\_95 (FC),

Start 67:

- Found in 17 of 275 ( 6.2% ) of genes in pham
- No Manual Annotations of this start.
- Called 5.9% of time when present
- Phage (with cluster) where this start called: KSunshine22\_98 (FC),

### **Summary by clusters:**

There are 30 clusters represented in this pham: GD1, GD2, GD3, GD4, DK, BN, singleton, FC, DV, DS, AC, EN, AE, EF, DG2, DG1, U, UNK, CR2, CR3, CR1, CR6, CR7, CR4, CR5, H2, H1, R, D2, D1,

Info for manual annotations of cluster AC:

- Start number 24 was manually annotated 2 times for cluster AC.
- Start number 36 was manually annotated 2 times for cluster AC.

Info for manual annotations of cluster AE:

- Start number 43 was manually annotated 2 times for cluster AE.
- Start number 55 was manually annotated 1 time for cluster AE.

Info for manual annotations of cluster BN:

- Start number 51 was manually annotated 9 times for cluster BN.

Info for manual annotations of cluster CR1:

- Start number 27 was manually annotated 3 times for cluster CR1.

Info for manual annotations of cluster CR2:

- Start number 32 was manually annotated 1 time for cluster CR2.
- Start number 40 was manually annotated 18 times for cluster CR2.
- Start number 45 was manually annotated 2 times for cluster CR2.

Info for manual annotations of cluster CR3:

- Start number 27 was manually annotated 6 times for cluster CR3.

Info for manual annotations of cluster CR4:

- Start number 40 was manually annotated 8 times for cluster CR4.

Info for manual annotations of cluster CR5:

- Start number 27 was manually annotated 2 times for cluster CR5.

Info for manual annotations of cluster CR6:

- Start number 47 was manually annotated 6 times for cluster CR6.

Info for manual annotations of cluster CR7:

- Start number 47 was manually annotated 1 time for cluster CR7.

Info for manual annotations of cluster D1:

- Start number 52 was manually annotated 22 times for cluster D1.

Info for manual annotations of cluster D2:

- Start number 55 was manually annotated 1 time for cluster D2.

Info for manual annotations of cluster DG1:

- Start number 42 was manually annotated 8 times for cluster DG1.

Info for manual annotations of cluster DG2:

- Start number 42 was manually annotated 1 time for cluster DG2.

Info for manual annotations of cluster DK:

- Start number 39 was manually annotated 2 times for cluster DK.

Info for manual annotations of cluster DS:

- Start number 37 was manually annotated 5 times for cluster DS.

Info for manual annotations of cluster DV:

- Start number 44 was manually annotated 37 times for cluster DV.

Info for manual annotations of cluster EF:

- Start number 45 was manually annotated 7 times for cluster EF.
- Start number 52 was manually annotated 35 times for cluster EF.

Info for manual annotations of cluster EN:

- Start number 44 was manually annotated 8 times for cluster EN.

Info for manual annotations of cluster FC:

- Start number 39 was manually annotated 11 times for cluster FC.
- Start number 52 was manually annotated 1 time for cluster FC.

Info for manual annotations of cluster GD1:

- Start number 41 was manually annotated 2 times for cluster GD1.

Info for manual annotations of cluster GD2:

- Start number 36 was manually annotated 2 times for cluster GD2.

Info for manual annotations of cluster GD3:

- Start number 33 was manually annotated 1 time for cluster GD3.

Info for manual annotations of cluster GD4:

- Start number 35 was manually annotated 1 time for cluster GD4.

Info for manual annotations of cluster H1:

- Start number 48 was manually annotated 9 times for cluster H1.

Info for manual annotations of cluster H2:

- Start number 52 was manually annotated 2 times for cluster H2.

Info for manual annotations of cluster R:

- Start number 38 was manually annotated 9 times for cluster R.

Info for manual annotations of cluster U:

- Start number 45 was manually annotated 3 times for cluster U.

**Gene Information:**

Gene: A3Wally\_112 Start: 76409, Stop: 75603, Start Num: 41

Candidate Starts for A3Wally\_112:

(Start: 41 @76409 has 2 MA's), (46, 76397), (59, 76346), (73, 76274), (76, 76262), (89, 76217), (90, 76214), (131, 76067), (138, 76037), (157, 75971), (161, 75959), (164, 75950), (171, 75902), (208, 75806), (231, 75710), (241, 75680),

Gene: Adjutor\_58 Start: 44429, Stop: 45289, Start Num: 52

Candidate Starts for Adjutor\_58:

(25, 44357), (Start: 52 @44429 has 61 MA's), (61, 44474), (65, 44486), (69, 44504), (70, 44516), (73, 44540), (74, 44543), (109, 44696), (112, 44717), (114, 44726), (118, 44732), (140, 44822), (141, 44825), (144, 44834), (151, 44855), (176, 44966), (181, 44978), (186, 44996), (208, 45047), (211, 45056), (217, 45086), (218, 45089),

Gene: Aesir\_44 Start: 29791, Stop: 30636, Start Num: 52

Candidate Starts for Aesir\_44:

(1, 29230), (5, 29326), (6, 29365), (13, 29491), (14, 29527), (Start: 52 @29791 has 61 MA's), (63, 29845), (70, 29881), (73, 29908), (83, 29953), (85, 29956), (94, 30001), (131, 30157), (140, 30193), (143, 30202), (144, 30205), (175, 30334), (181, 30349), (223, 30454), (235, 30496),

Gene: Aikoy\_76 Start: 51990, Stop: 52910, Start Num: 43

Candidate Starts for Aikoy\_76:

(Start: 43 @51990 has 2 MA's), (Start: 55 @52005 has 3 MA's), (69, 52077), (70, 52089), (73, 52113), (74, 52116), (80, 52146), (95, 52209), (110, 52266), (112, 52284), (114, 52293), (118, 52299), (127, 52329), (167, 52488), (169, 52497), (170, 52500), (181, 52545), (186, 52563), (208, 52611), (219, 52659), (228, 52698), (253, 52803),

Gene: Ajin\_49 Start: 31113, Stop: 31955, Start Num: 45

Candidate Starts for Ajin\_49:

(Start: 45 @31113 has 12 MA's), (80, 31260), (83, 31272), (85, 31275), (123, 31437), (131, 31473), (140, 31509), (158, 31572), (161, 31581), (175, 31650), (181, 31665), (235, 31812),

Gene: Alephilan\_68 Start: 45485, Stop: 46561, Start Num: 44

Candidate Starts for Alephilan\_68:

(Start: 44 @45485 has 45 MA's), (78, 45617), (89, 45665), (109, 45746), (111, 45758), (112, 45767), (114, 45776), (149, 45899), (154, 45920), (162, 45947), (181, 46028), (186, 46046), (197, 46067), (215, 46145), (237, 46229), (261, 46394), (272, 46532),

Gene: Alyssamiracle\_70 Start: 44487, Stop: 45557, Start Num: 44

Candidate Starts for Alyssamiracle\_70:

(Start: 44 @44487 has 45 MA's), (71, 44583), (78, 44619), (89, 44667), (111, 44760), (112, 44769), (114, 44778), (149, 44901), (154, 44922), (162, 44949), (181, 45030), (186, 45048), (197, 45069), (215, 45147), (237, 45231), (272, 45528),

Gene: Anakin\_45 Start: 30144, Stop: 30992, Start Num: 52

Candidate Starts for Anakin\_45:

(6, 29718), (10, 29748), (14, 29880), (Start: 52 @30144 has 61 MA's), (63, 30198), (70, 30234), (73, 30261), (83, 30306), (85, 30309), (94, 30354), (131, 30510), (140, 30546), (143, 30555), (144, 30558), (175, 30687), (181, 30702), (223, 30807), (235, 30849),

Gene: AnnaSerena\_45 Start: 30179, Stop: 31027, Start Num: 52

Candidate Starts for AnnaSerena\_45:

(6, 29753), (10, 29783), (14, 29915), (Start: 52 @30179 has 61 MA's), (63, 30233), (70, 30269), (73, 30296), (83, 30341), (85, 30344), (94, 30389), (131, 30545), (140, 30581), (143, 30590), (144, 30593), (175, 30722), (181, 30737), (223, 30842), (235, 30884),

Gene: Annapurna\_45 Start: 29420, Stop: 30265, Start Num: 52

Candidate Starts for Annapurna\_45:

(1, 28859), (5, 28955), (6, 28994), (7, 29000), (10, 29024), (13, 29120), (14, 29156), (Start: 52 @29420 has 61 MA's), (63, 29474), (70, 29510), (73, 29537), (83, 29582), (85, 29585), (94, 29630), (131, 29786), (140, 29822), (143, 29831), (144, 29834), (175, 29963), (181, 29978), (223, 30083), (235, 30125),

Gene: Apeppi\_62 Start: 44646, Stop: 45731, Start Num: 44

Candidate Starts for Apeppi\_62:

(Start: 44 @44646 has 45 MA's), (70, 44739), (78, 44778), (89, 44826), (112, 44928), (114, 44937), (149, 45060), (154, 45081), (158, 45096), (162, 45108), (181, 45189), (186, 45207), (197, 45228), (201, 45249), (215, 45306), (237, 45390), (269, 45690),

Gene: Apiary\_64 Start: 48400, Stop: 47549, Start Num: 47

Candidate Starts for Apiary\_64:

(Start: 47 @48400 has 7 MA's), (63, 48340), (89, 48220), (93, 48208), (112, 48106), (115, 48097), (122, 48079), (126, 48067), (140, 47995), (181, 47839), (186, 47821), (189, 47815), (226, 47692), (238, 47656), (244, 47635),

Gene: Arti\_64 Start: 50810, Stop: 49992, Start Num: 40

Candidate Starts for Arti\_64:

(26, 50837), (Start: 40 @50810 has 26 MA's), (63, 50738), (108, 50516), (142, 50375), (145, 50366), (159, 50315), (168, 50279), (181, 50225), (186, 50207), (197, 50192),

Gene: Artiphact\_45 Start: 30168, Stop: 31016, Start Num: 52

Candidate Starts for Artiphact\_45:

(6, 29742), (10, 29772), (14, 29904), (Start: 52 @30168 has 61 MA's), (63, 30222), (70, 30258), (73, 30285), (83, 30330), (85, 30333), (94, 30378), (131, 30534), (140, 30570), (143, 30579), (144, 30582), (175, 30711), (181, 30726), (223, 30831), (235, 30873),

Gene: Artu\_96 Start: 80843, Stop: 81661, Start Num: 39

Candidate Starts for Artu\_96:

(Start: 39 @80843 has 13 MA's), (Start: 52 @80870 has 61 MA's), (64, 80927), (67, 80936), (68, 80942), (138, 81218), (161, 81296), (182, 81386), (206, 81431), (222, 81500), (231, 81527), (257, 81638),

Gene: Astralis\_67 Start: 44066, Stop: 45136, Start Num: 44

Candidate Starts for Astralis\_67:

(Start: 44 @44066 has 45 MA's), (71, 44162), (78, 44198), (89, 44246), (111, 44339), (112, 44348), (114, 44357), (149, 44480), (154, 44501), (162, 44528), (181, 44609), (186, 44627), (197, 44648), (215, 44726), (237, 44810), (272, 45107),

Gene: Atuin\_98 Start: 84308, Stop: 85141, Start Num: 39

Candidate Starts for Atuin\_98:

(Start: 39 @84308 has 13 MA's), (64, 84392), (67, 84401), (68, 84407), (92, 84512), (138, 84683), (161, 84761), (182, 84851), (204, 84893), (222, 84968), (229, 84989), (231, 84995),

Gene: Avian\_65 Start: 44215, Stop: 45285, Start Num: 44

Candidate Starts for Avian\_65:

(Start: 44 @44215 has 45 MA's), (71, 44311), (78, 44347), (89, 44395), (111, 44488), (112, 44497), (114, 44506), (149, 44629), (154, 44650), (162, 44677), (181, 44758), (186, 44776), (197, 44797), (215, 44875), (237, 44959), (272, 45256),

Gene: Barnyard\_75 Start: 51526, Stop: 52548, Start Num: 52

Candidate Starts for Barnyard\_75:

(Start: 52 @51526 has 61 MA's), (75, 51652), (77, 51658), (80, 51682), (94, 51742), (95, 51745), (105, 51790), (112, 51835), (114, 51844), (118, 51850), (124, 51868), (141, 51949), (148, 51970), (168, 52048), (174, 52093), (181, 52111), (186, 52129), (212, 52204), (228, 52273), (235, 52294), (256, 52387), (262, 52423),

Gene: Beckerton\_71 Start: 53060, Stop: 54136, Start Num: 48

Candidate Starts for Beckerton\_71:

(Start: 48 @53060 has 9 MA's), (53, 53066), (63, 53114), (74, 53177), (85, 53222), (95, 53270), (102, 53300), (112, 53357), (114, 53366), (118, 53372), (144, 53474), (153, 53507), (157, 53522), (167, 53561), (174, 53600), (181, 53618), (186, 53636), (187, 53639), (191, 53648), (212, 53714), (217, 53738), (263, 53927), (270, 54074), (271, 54077), (274, 54116), (275, 54125),

Gene: Beyoncage\_56 Start: 41805, Stop: 42734, Start Num: 42

Candidate Starts for Beyoncage\_56:

(Start: 42 @41805 has 9 MA's), (64, 41862), (70, 41895), (104, 42045), (106, 42054), (109, 42078), (112, 42099), (118, 42114), (122, 42126), (126, 42138), (133, 42177), (136, 42192), (147, 42225), (173, 42336), (174, 42342), (181, 42360), (190, 42384), (193, 42390), (202, 42420), (208, 42444), (230, 42537), (260, 42705),

Gene: BiPauneto\_68 Start: 50402, Stop: 49605, Start Num: 40

Candidate Starts for BiPauneto\_68:

(19, 50501), (26, 50429), (Start: 40 @50402 has 26 MA's), (63, 50327), (100, 50153), (132, 50021), (139, 49991), (142, 49982), (145, 49973), (152, 49946), (159, 49919), (170, 49874), (177, 49841), (181, 49829), (186, 49811), (218, 49730), (240, 49652),

Gene: Big4\_101 Start: 75498, Stop: 74737, Start Num: 36

Candidate Starts for Big4\_101:

(Start: 36 @75498 has 4 MA's), (89, 75306), (90, 75303), (94, 75279), (131, 75156), (138, 75126), (157, 75060), (161, 75048), (172, 74988), (184, 74952), (208, 74895), (217, 74853), (231, 74799),

Gene: BigMama\_57 Start: 44505, Stop: 45365, Start Num: 52

Candidate Starts for BigMama\_57:

(25, 44433), (Start: 52 @44505 has 61 MA's), (61, 44550), (65, 44562), (69, 44580), (70, 44592), (73, 44616), (74, 44619), (109, 44772), (112, 44793), (114, 44802), (118, 44808), (140, 44898), (141, 44901), (144, 44910), (151, 44931), (176, 45042), (181, 45054), (186, 45072), (208, 45123), (211, 45132), (217, 45162), (218, 45165),

Gene: BirthdayBoy\_69 Start: 45791, Stop: 46882, Start Num: 44

Candidate Starts for BirthdayBoy\_69:

(Start: 44 @45791 has 45 MA's), (78, 45923), (89, 45971), (109, 46052), (111, 46064), (112, 46073), (114, 46082), (149, 46205), (154, 46226), (162, 46253), (181, 46334), (186, 46352), (197, 46373), (215, 46451), (237, 46535), (261, 46700), (263, 46709), (272, 46853),

Gene: BiteSize\_56 Start: 41891, Stop: 42820, Start Num: 42

Candidate Starts for BiteSize\_56:

(Start: 42 @41891 has 9 MA's), (64, 41948), (70, 41981), (104, 42131), (106, 42140), (109, 42164), (112, 42185), (118, 42200), (122, 42212), (126, 42224), (133, 42263), (136, 42278), (147, 42311), (173, 42422), (174, 42428), (181, 42446), (190, 42470), (193, 42476), (202, 42506), (208, 42530), (230, 42623), (260, 42791),

Gene: Bloom\_108 Start: 84483, Stop: 85292, Start Num: 39

Candidate Starts for Bloom\_108:

(Start: 39 @84483 has 13 MA's), (69, 84588), (138, 84858), (161, 84936), (221, 85137), (231, 85167), (232, 85170), (245, 85200), (257, 85269), (258, 85287),

Gene: BlueNGold\_163 Start: 93500, Stop: 92757, Start Num: 37

Candidate Starts for BlueNGold\_163:

(Start: 37 @93500 has 5 MA's), (Start: 52 @93473 has 61 MA's), (67, 93407), (72, 93365), (76, 93350), (81, 93332), (99, 93257), (139, 93122), (142, 93113), (145, 93104), (148, 93095), (157, 93059), (161, 93047), (164, 93038), (172, 92987), (173, 92984), (182, 92954), (185, 92948), (208, 92900), (217, 92858), (220, 92846), (228, 92819), (232, 92807),

Gene: BobtimousPrime\_72 Start: 53362, Stop: 54438, Start Num: 48

Candidate Starts for BobtimousPrime\_72:

(Start: 48 @53362 has 9 MA's), (53, 53368), (63, 53416), (85, 53524), (95, 53572), (102, 53602), (112, 53659), (114, 53668), (118, 53674), (144, 53776), (153, 53809), (157, 53824), (167, 53863), (174, 53902), (181, 53920), (186, 53938), (187, 53941), (191, 53950), (212, 54016), (217, 54040), (270, 54376), (271, 54379), (274, 54418), (275, 54427),

Gene: Bonum\_69 Start: 51702, Stop: 50839, Start Num: 40

Candidate Starts for Bonum\_69:

(22, 51780), (Start: 40 @51702 has 26 MA's), (80, 51540), (108, 51414), (142, 51273), (152, 51240), (159, 51213), (173, 51147), (181, 51123), (186, 51105), (212, 51051), (219, 51021), (230, 50976),

Gene: BooTeria\_100 Start: 81040, Stop: 81774, Start Num: 64

Candidate Starts for BooTeria\_100:

(Start: 39 @80956 has 13 MA's), (Start: 52 @80983 has 61 MA's), (64, 81040), (67, 81049), (68, 81055), (138, 81331), (156, 81394), (161, 81409), (182, 81499), (206, 81544), (222, 81613), (231, 81640), (255, 81736), (257, 81751),

Gene: Boopy\_166 Start: 93511, Stop: 92768, Start Num: 37

Candidate Starts for Boopy\_166:

(Start: 37 @93511 has 5 MA's), (Start: 52 @93484 has 61 MA's), (67, 93418), (72, 93376), (76, 93361), (81, 93343), (99, 93268), (139, 93133), (142, 93124), (145, 93115), (148, 93106), (157, 93070), (161, 93058), (164, 93049), (172, 92998), (173, 92995), (182, 92965), (185, 92959), (208, 92911), (217, 92869), (220, 92857), (228, 92830), (232, 92818),

Gene: Bramble\_49 Start: 31162, Stop: 32004, Start Num: 45

Candidate Starts for Bramble\_49:

(Start: 45 @31162 has 12 MA's), (65, 31225), (80, 31309), (83, 31321), (85, 31324), (123, 31486), (131, 31522), (140, 31558), (158, 31621), (161, 31630), (175, 31699), (181, 31714), (235, 31861),

Gene: Braxoaddie\_64 Start: 48389, Stop: 47538, Start Num: 47

Candidate Starts for Braxoaddie\_64:

(Start: 47 @48389 has 7 MA's), (63, 48329), (89, 48209), (93, 48197), (112, 48095), (115, 48086), (122, 48068), (126, 48056), (140, 47984), (181, 47828), (186, 47810), (189, 47804), (226, 47681), (238, 47645), (244, 47624),

Gene: Buggaboo\_67 Start: 52253, Stop: 51390, Start Num: 40

Candidate Starts for Buggaboo\_67:

(22, 52331), (Start: 40 @52253 has 26 MA's), (80, 52091), (108, 51965), (142, 51824), (152, 51791), (159, 51764), (161, 51758), (173, 51698), (181, 51674), (186, 51656), (212, 51602), (219, 51572), (230, 51527),

Gene: Butterscotch\_58 Start: 44489, Stop: 45349, Start Num: 52

Candidate Starts for Butterscotch\_58:

(25, 44417), (Start: 52 @44489 has 61 MA's), (61, 44534), (65, 44546), (69, 44564), (70, 44576), (73, 44600), (74, 44603), (109, 44756), (112, 44777), (114, 44786), (118, 44792), (140, 44882), (141, 44885), (144, 44894), (151, 44915), (176, 45026), (181, 45038), (186, 45056), (208, 45107), (211, 45116), (217, 45146), (218, 45149),

Gene: C3PO\_52 Start: 45078, Stop: 44314, Start Num: 44

Candidate Starts for C3PO\_52:

(Start: 44 @45078 has 45 MA's), (89, 44886), (94, 44859), (112, 44784), (168, 44577), (181, 44523), (211, 44478), (230, 44394),

Gene: Candle\_68 Start: 52987, Stop: 53817, Start Num: 38

Candidate Starts for Candle\_68:

(Start: 38 @52987 has 9 MA's), (58, 53032), (64, 53062), (70, 53095), (73, 53119), (85, 53167), (90, 53188), (109, 53281), (117, 53311), (119, 53314), (125, 53326), (148, 53410), (155, 53440), (174, 53524), (176, 53530), (181, 53542), (186, 53560), (194, 53587), (196, 53590), (218, 53686), (223, 53707), (230, 53734),

Gene: Cborch11\_74 Start: 52603, Stop: 53682, Start Num: 48

Candidate Starts for Cborch11\_74:

(20, 52492), (Start: 48 @52603 has 9 MA's), (53, 52609), (57, 52621), (63, 52657), (85, 52765), (95, 52813), (100, 52834), (101, 52840), (112, 52900), (114, 52909), (118, 52915), (144, 53017), (153, 53050), (157, 53065), (167, 53104), (174, 53143), (181, 53161), (186, 53179), (187, 53182), (191, 53191), (212, 53257), (217, 53281), (263, 53473), (270, 53620), (271, 53623), (274, 53662), (275, 53671),

Gene: Cece\_95 Start: 78538, Stop: 77750, Start Num: 33

Candidate Starts for Cece\_95:

(Start: 33 @78538 has 1 MA's), (Start: 36 @78532 has 4 MA's), (Start: 52 @78508 has 61 MA's), (76, 78385), (89, 78337), (91, 78331), (94, 78310), (96, 78301), (113, 78229), (130, 78193), (131, 78187), (138, 78157), (149, 78124), (161, 78079), (167, 78052), (172, 78019), (208, 77926), (226, 77845), (231, 77830),

Gene: Charminar\_67 Start: 43825, Stop: 44895, Start Num: 44

Candidate Starts for Charminar\_67:

(Start: 44 @43825 has 45 MA's), (71, 43921), (78, 43957), (89, 44005), (111, 44098), (112, 44107), (114, 44116), (149, 44239), (154, 44260), (162, 44287), (181, 44368), (186, 44386), (197, 44407), (215, 44485), (237, 44569), (272, 44866),

Gene: ChewyVIII\_77 Start: 56830, Stop: 56066, Start Num: 55

Candidate Starts for ChewyVIII\_77:

(Start: 55 @56830 has 3 MA's), (56, 56821), (63, 56782), (74, 56716), (118, 56524), (160, 56359), (165, 56335), (175, 56287), (185, 56260), (189, 56245),

Gene: Chill\_61 Start: 44552, Stop: 45412, Start Num: 52

Candidate Starts for Chill\_61:

(25, 44480), (Start: 52 @44552 has 61 MA's), (61, 44597), (65, 44609), (69, 44627), (70, 44639), (73, 44663), (74, 44666), (109, 44819), (112, 44840), (114, 44849), (118, 44855), (140, 44945), (141, 44948), (144, 44957), (151, 44978), (176, 45089), (181, 45101), (186, 45119), (208, 45170), (211, 45179), (217, 45209), (218, 45212),

Gene: Chilliams\_103 Start: 77303, Stop: 78091, Start Num: 50

Candidate Starts for Chilliams\_103:

(Start: 39 @77282 has 13 MA's), (50, 77303), (68, 77381), (69, 77387), (109, 77558), (138, 77657), (161, 77735), (176, 77807), (182, 77825), (222, 77942), (257, 78068),

Gene: Chivey\_45 Start: 29369, Stop: 30214, Start Num: 52

Candidate Starts for Chivey\_45:

(1, 28808), (5, 28904), (6, 28943), (7, 28949), (10, 28973), (13, 29069), (14, 29105), (Start: 52 @29369 has 61 MA's), (63, 29423), (70, 29459), (73, 29486), (83, 29531), (85, 29534), (94, 29579), (131, 29735), (140, 29771), (143, 29780), (144, 29783), (175, 29912), (181, 29927), (223, 30032), (235, 30074),

Gene: CoffeeBean\_64 Start: 48347, Stop: 47496, Start Num: 47

Candidate Starts for CoffeeBean\_64:

(Start: 47 @48347 has 7 MA's), (63, 48287), (89, 48167), (93, 48155), (112, 48053), (115, 48044), (122, 48026), (126, 48014), (140, 47942), (181, 47786), (186, 47768), (189, 47762), (226, 47639), (238, 47603), (244, 47582),

Gene: Commandaria\_66 Start: 52055, Stop: 51243, Start Num: 32

Candidate Starts for Commandaria\_66:

(Start: 32 @52055 has 1 MA's), (63, 51968), (73, 51908), (86, 51851), (87, 51842), (142, 51608), (145, 51599), (152, 51575), (154, 51566), (159, 51548), (181, 51458), (186, 51440), (197, 51425), (198, 51419), (209, 51395),

Gene: CoolCookie\_45 Start: 30174, Stop: 31022, Start Num: 52

Candidate Starts for CoolCookie\_45:

(6, 29748), (10, 29778), (14, 29910), (Start: 52 @30174 has 61 MA's), (63, 30228), (70, 30264), (73, 30291), (83, 30336), (85, 30339), (94, 30384), (131, 30540), (140, 30576), (143, 30585), (144, 30588), (175, 30717), (181, 30732), (223, 30837), (235, 30879),

Gene: Crestdrop\_45 Start: 29400, Stop: 30245, Start Num: 52

Candidate Starts for Crestdrop\_45:

(2, 28890), (3, 28896), (4, 28923), (6, 28974), (10, 29004), (14, 29136), (Start: 52 @29400 has 61 MA's), (63, 29454), (70, 29490), (73, 29517), (83, 29562), (85, 29565), (94, 29610), (131, 29766), (140, 29802), (143, 29811), (144, 29814), (175, 29943), (181, 29958), (223, 30063), (235, 30105),

Gene: Cruella\_52 Start: 45078, Stop: 44314, Start Num: 44

Candidate Starts for Cruella\_52:

(Start: 44 @45078 has 45 MA's), (89, 44886), (94, 44859), (112, 44784), (168, 44577), (181, 44523), (211, 44478), (230, 44394),

Gene: Cuke\_77 Start: 46278, Stop: 47102, Start Num: 36

Candidate Starts for Cuke\_77:

(Start: 36 @46278 has 4 MA's), (Start: 42 @46290 has 9 MA's), (50, 46302), (54, 46305), (70, 46389), (73, 46413), (82, 46458), (84, 46461), (102, 46539), (110, 46578), (118, 46611), (125, 46632), (126, 46635), (140, 46701), (142, 46707), (153, 46746), (157, 46761), (178, 46848), (181, 46857), (186, 46875), (200, 46914), (210, 46941), (216, 46971), (218, 46980), (224, 47004), (239, 47055),

Gene: Cybele\_45 Start: 30144, Stop: 30992, Start Num: 52

Candidate Starts for Cybele\_45:

(6, 29718), (10, 29748), (14, 29880), (Start: 52 @30144 has 61 MA's), (63, 30198), (70, 30234), (73, 30261), (83, 30306), (85, 30309), (94, 30354), (131, 30510), (140, 30546), (143, 30555), (144, 30558), (175, 30687), (181, 30702), (223, 30807), (235, 30849),

Gene: Dalilpop\_69 Start: 52942, Stop: 52163, Start Num: 27

Candidate Starts for Dalilpop\_69:

(Start: 27 @52942 has 11 MA's), (63, 52855), (139, 52516), (142, 52507), (151, 52480), (152, 52474), (159, 52447), (168, 52417), (181, 52363), (183, 52357), (186, 52345), (210, 52303), (219, 52267),

Gene: Damien\_72 Start: 52565, Stop: 53644, Start Num: 48

Candidate Starts for Damien\_72:

(Start: 48 @52565 has 9 MA's), (53, 52571), (57, 52583), (63, 52619), (85, 52727), (95, 52775), (100, 52796), (101, 52802), (112, 52862), (114, 52871), (118, 52877), (144, 52979), (153, 53012), (157, 53027), (167, 53066), (174, 53105), (181, 53123), (186, 53141), (187, 53144), (191, 53153), (212, 53219), (217, 53243), (263, 53435), (270, 53582), (271, 53585), (274, 53624), (275, 53633),

Gene: DannyDe\_45 Start: 29375, Stop: 30220, Start Num: 52

Candidate Starts for DannyDe\_45:

(1, 28814), (5, 28910), (6, 28949), (7, 28955), (10, 28979), (13, 29075), (14, 29111), (Start: 52 @29375 has 61 MA's), (63, 29429), (70, 29465), (73, 29492), (83, 29537), (85, 29540), (94, 29585), (131, 29741), (140, 29777), (143, 29786), (144, 29789), (175, 29918), (181, 29933), (223, 30038), (235, 30080),

Gene: Darwin\_56 Start: 44559, Stop: 43795, Start Num: 44

Candidate Starts for Darwin\_56:

(Start: 44 @44559 has 45 MA's), (94, 44340), (110, 44283), (168, 44058), (181, 44004), (211, 43959), (230, 43875),

Gene: Dauntless\_44 Start: 29727, Stop: 30572, Start Num: 52

Candidate Starts for Dauntless\_44:

(6, 29301), (10, 29331), (11, 29358), (13, 29427), (14, 29463), (Start: 52 @29727 has 61 MA's), (63, 29781), (70, 29817), (73, 29844), (83, 29889), (85, 29892), (94, 29937), (131, 30093), (140, 30129), (143, 30138), (144, 30141), (175, 30270), (181, 30285), (223, 30390), (235, 30432),

Gene: DaviePasture\_67 Start: 45399, Stop: 46469, Start Num: 44

Candidate Starts for DaviePasture\_67:

(Start: 44 @45399 has 45 MA's), (78, 45531), (89, 45579), (111, 45672), (112, 45681), (114, 45690), (149, 45813), (154, 45834), (162, 45861), (181, 45942), (186, 45960), (197, 45981), (215, 46059), (237, 46143), (252, 46221), (261, 46308), (272, 46440),

Gene: Delton\_60 Start: 44887, Stop: 45747, Start Num: 52

Candidate Starts for Delton\_60:

(25, 44815), (Start: 52 @44887 has 61 MA's), (61, 44932), (65, 44944), (69, 44962), (70, 44974), (73, 44998), (74, 45001), (109, 45154), (112, 45175), (114, 45184), (118, 45190), (140, 45280), (141, 45283), (144, 45292), (151, 45313), (176, 45424), (181, 45436), (186, 45454), (208, 45505), (211, 45514), (217, 45544), (218, 45547),

Gene: Demikore\_86 Start: 54792, Stop: 55850, Start Num: 45

Candidate Starts for Demikore\_86:

(Start: 45 @54792 has 12 MA's), (64, 54849), (65, 54852), (70, 54882), (80, 54939), (85, 54954), (112, 55083), (121, 55107), (132, 55161), (137, 55185), (173, 55329), (174, 55335), (176, 55341), (180,

55350), (181, 55353), (186, 55371), (198, 55398), (212, 55458), (223, 55506), (237, 55554), (243, 55572), (251, 55632), (256, 55653), (265, 55761), (266, 55776),

Gene: Djokovic\_56 Start: 41804, Stop: 42733, Start Num: 42

Candidate Starts for Djokovic\_56:

(Start: 42 @41804 has 9 MA's), (64, 41861), (70, 41894), (104, 42044), (106, 42053), (109, 42077), (112, 42098), (118, 42113), (122, 42125), (126, 42137), (133, 42176), (136, 42191), (147, 42224), (173, 42335), (174, 42341), (181, 42359), (190, 42383), (193, 42389), (202, 42419), (208, 42443), (230, 42536), (260, 42704),

Gene: Dodo\_112 Start: 76719, Stop: 75925, Start Num: 41

Candidate Starts for Dodo\_112:

(Start: 41 @76719 has 2 MA's), (46, 76707), (59, 76656), (73, 76584), (76, 76572), (89, 76527), (90, 76524), (131, 76377), (138, 76347), (157, 76281), (161, 76269), (164, 76260), (171, 76212), (208, 76116), (231, 76020), (241, 75990), (248, 75969),

Gene: DoobyDoo\_66 Start: 44375, Stop: 45445, Start Num: 44

Candidate Starts for DoobyDoo\_66:

(Start: 44 @44375 has 45 MA's), (78, 44507), (89, 44555), (109, 44636), (111, 44648), (112, 44657), (114, 44666), (149, 44789), (154, 44810), (162, 44837), (181, 44918), (186, 44936), (197, 44957), (215, 45035), (237, 45119), (261, 45284), (272, 45416),

Gene: DrLupo\_79 Start: 52740, Stop: 53756, Start Num: 52

Candidate Starts for DrLupo\_79:

(Start: 52 @52740 has 61 MA's), (75, 52866), (77, 52872), (80, 52896), (94, 52956), (95, 52959), (103, 52995), (105, 53004), (112, 53049), (114, 53058), (118, 53064), (124, 53082), (129, 53100), (141, 53163), (148, 53184), (168, 53262), (174, 53307), (181, 53325), (186, 53343), (188, 53349), (212, 53418), (235, 53508), (251, 53577), (273, 53739),

Gene: Dryad\_68 Start: 46911, Stop: 46123, Start Num: 51

Candidate Starts for Dryad\_68:

(Start: 51 @46911 has 9 MA's), (58, 46884), (63, 46857), (66, 46848), (70, 46821), (73, 46797), (74, 46794), (111, 46635), (133, 46545), (134, 46539), (146, 46500), (152, 46479), (181, 46362), (183, 46356), (195, 46338), (209, 46311), (227, 46239),

Gene: DumpTruck\_66 Start: 44187, Stop: 45317, Start Num: 44

Candidate Starts for DumpTruck\_66:

(Start: 44 @44187 has 45 MA's), (70, 44283), (78, 44322), (89, 44370), (109, 44451), (111, 44463), (112, 44472), (114, 44481), (154, 44625), (181, 44733), (186, 44751), (197, 44772), (202, 44796), (203, 44799), (215, 44850), (250, 44991), (264, 45147), (272, 45285),

Gene: DunneganBoMo\_93 Start: 80225, Stop: 81043, Start Num: 39

Candidate Starts for DunneganBoMo\_93:

(Start: 39 @80225 has 13 MA's), (Start: 52 @80252 has 61 MA's), (64, 80309), (67, 80318), (68, 80324), (138, 80600), (156, 80663), (161, 80678), (182, 80768), (206, 80813), (222, 80882), (231, 80909), (255, 81005), (257, 81020),

Gene: Ellewin\_92 Start: 79636, Stop: 80454, Start Num: 39

Candidate Starts for Ellewin\_92:

(Start: 39 @79636 has 13 MA's), (Start: 52 @79663 has 61 MA's), (64, 79720), (67, 79729), (68, 79735), (138, 80011), (156, 80074), (161, 80089), (182, 80179), (206, 80224), (222, 80293), (231, 80320), (257, 80431),

Gene: Emianna\_65 Start: 52042, Stop: 51221, Start Num: 40

Candidate Starts for Emianna\_65:

(26, 52069), (Start: 40 @52042 has 26 MA's), (63, 51970), (108, 51748), (142, 51607), (145, 51598), (159, 51547), (168, 51511), (181, 51457), (186, 51439), (197, 51424), (232, 51301),

Gene: Emmetator\_96 Start: 80264, Stop: 80998, Start Num: 64

Candidate Starts for Emmetator\_96:

(Start: 39 @80180 has 13 MA's), (Start: 52 @80207 has 61 MA's), (64, 80264), (67, 80273), (68, 80279), (138, 80555), (161, 80633), (182, 80723), (206, 80768), (222, 80837), (231, 80864), (257, 80975),

Gene: Ennea\_72 Start: 53024, Stop: 52245, Start Num: 27

Candidate Starts for Ennea\_72:

(Start: 27 @53024 has 11 MA's), (63, 52940), (142, 52592), (159, 52532), (168, 52496), (181, 52442), (186, 52424), (207, 52391), (210, 52382), (228, 52307), (232, 52295),

Gene: Erasmago\_103 Start: 73184, Stop: 72417, Start Num: 36

Candidate Starts for Erasmago\_103:

(17, 73313), (18, 73307), (Start: 36 @73184 has 4 MA's), (89, 72992), (90, 72989), (96, 72956), (120, 72869), (131, 72842), (138, 72812), (157, 72746), (161, 72734), (172, 72674), (179, 72650), (184, 72638), (208, 72581), (223, 72515), (231, 72485),

Gene: Erk16\_58 Start: 44591, Stop: 45451, Start Num: 52

Candidate Starts for Erk16\_58:

(Start: 52 @44591 has 61 MA's), (61, 44636), (65, 44648), (69, 44666), (70, 44678), (73, 44702), (74, 44705), (109, 44858), (112, 44879), (114, 44888), (118, 44894), (140, 44984), (141, 44987), (144, 44996), (151, 45017), (176, 45128), (181, 45140), (186, 45158), (208, 45209), (211, 45218), (217, 45248), (218, 45251),

Gene: Erudite\_44 Start: 29727, Stop: 30572, Start Num: 52

Candidate Starts for Erudite\_44:

(6, 29301), (10, 29331), (11, 29358), (13, 29427), (14, 29463), (Start: 52 @29727 has 61 MA's), (63, 29781), (70, 29817), (73, 29844), (83, 29889), (85, 29892), (94, 29937), (131, 30093), (140, 30129), (143, 30138), (144, 30141), (175, 30270), (181, 30285), (223, 30390), (235, 30432),

Gene: Erutan\_67 Start: 45017, Stop: 46087, Start Num: 44

Candidate Starts for Erutan\_67:

(Start: 44 @45017 has 45 MA's), (78, 45149), (89, 45197), (111, 45290), (112, 45299), (114, 45308), (149, 45431), (154, 45452), (162, 45479), (181, 45560), (186, 45578), (197, 45599), (215, 45677), (237, 45761), (254, 45842), (272, 46058),

Gene: Flapper\_68 Start: 52133, Stop: 51354, Start Num: 27

Candidate Starts for Flapper\_68:

(Start: 27 @52133 has 11 MA's), (63, 52046), (74, 51983), (139, 51707), (142, 51698), (152, 51665), (159, 51638), (168, 51608), (181, 51554), (183, 51548), (186, 51536), (189, 51530), (210, 51494), (219, 51458),

Gene: Float294\_66 Start: 52739, Stop: 51960, Start Num: 27

Candidate Starts for Float294\_66:

(Start: 27 @52739 has 11 MA's), (63, 52655), (77, 52580), (142, 52307), (159, 52247), (168, 52211), (181, 52157), (186, 52139), (207, 52106), (210, 52097), (228, 52022), (232, 52010),

Gene: FloraSnap32\_104 Start: 83380, Stop: 84189, Start Num: 39

Candidate Starts for FloraSnap32\_104:

(Start: 39 @83380 has 13 MA's), (69, 83485), (138, 83755), (161, 83833), (231, 84064), (232, 84067), (245, 84097), (247, 84100), (257, 84166), (258, 84184),

Gene: Forza\_167 Start: 93428, Stop: 92685, Start Num: 37

Candidate Starts for Forza\_167:

(Start: 37 @93428 has 5 MA's), (Start: 52 @93401 has 61 MA's), (67, 93335), (72, 93293), (76, 93278), (81, 93260), (99, 93185), (139, 93050), (142, 93041), (145, 93032), (148, 93023), (157, 92987), (161, 92975), (164, 92966), (172, 92915), (173, 92912), (182, 92882), (185, 92876), (208, 92828), (217, 92786), (220, 92774), (228, 92747), (232, 92735),

Gene: FountainFog\_44 Start: 29411, Stop: 30256, Start Num: 52

Candidate Starts for FountainFog\_44:

(1, 28850), (5, 28946), (6, 28985), (10, 29015), (13, 29111), (14, 29147), (Start: 52 @29411 has 61 MA's), (63, 29465), (70, 29501), (73, 29528), (83, 29573), (85, 29576), (94, 29621), (131, 29777), (140, 29813), (143, 29822), (144, 29825), (175, 29954), (181, 29969), (223, 30074), (235, 30116),

Gene: Fowlmouth\_78 Start: 48807, Stop: 49670, Start Num: 24

Candidate Starts for Fowlmouth\_78:

(Start: 24 @48807 has 2 MA's), (74, 48993), (82, 49035), (84, 49038), (102, 49116), (107, 49146), (118, 49188), (122, 49200), (126, 49212), (139, 49275), (142, 49284), (153, 49323), (178, 49425), (181, 49434), (200, 49491), (216, 49548), (218, 49557), (224, 49581), (239, 49632),

Gene: Foxboro\_66 Start: 52567, Stop: 51746, Start Num: 40

Candidate Starts for Foxboro\_66:

(26, 52594), (Start: 40 @52567 has 26 MA's), (63, 52495), (108, 52273), (142, 52132), (145, 52123), (159, 52072), (168, 52036), (181, 51982), (186, 51964), (197, 51949),

Gene: FreddieHg\_45 Start: 29385, Stop: 30230, Start Num: 52

Candidate Starts for FreddieHg\_45:

(1, 28824), (5, 28920), (6, 28959), (7, 28965), (10, 28989), (13, 29085), (14, 29121), (Start: 52 @29385 has 61 MA's), (63, 29439), (70, 29475), (73, 29502), (83, 29547), (85, 29550), (94, 29595), (131, 29751), (140, 29787), (143, 29796), (144, 29799), (175, 29928), (181, 29943), (223, 30048), (235, 30090),

Gene: FrostedClock\_107 Start: 84680, Stop: 85489, Start Num: 39

Candidate Starts for FrostedClock\_107:

(Start: 39 @84680 has 13 MA's), (69, 84785), (138, 85055), (161, 85133), (221, 85334), (231, 85364), (232, 85367), (245, 85397), (257, 85466), (258, 85484),

Gene: Fulcrum\_67 Start: 45099, Stop: 46190, Start Num: 44

Candidate Starts for Fulcrum\_67:

(Start: 44 @45099 has 45 MA's), (78, 45231), (89, 45279), (109, 45360), (111, 45372), (112, 45381), (114, 45390), (149, 45513), (154, 45534), (162, 45561), (181, 45642), (186, 45660), (197, 45681), (215, 45759), (237, 45843), (261, 46008), (263, 46017), (272, 46161),

Gene: Fury\_74 Start: 51253, Stop: 50462, Start Num: 27

Candidate Starts for Fury\_74:

(Start: 27 @51253 has 11 MA's), (63, 51157), (112, 50923), (142, 50812), (145, 50803), (151, 50785), (153, 50773), (159, 50752), (181, 50662), (186, 50644), (197, 50629), (218, 50569),

Gene: GMA2\_61 Start: 64314, Stop: 63565, Start Num: 35

Candidate Starts for GMA2\_61:

(Start: 35 @64314 has 1 MA's), (Start: 52 @64284 has 61 MA's), (64, 64227), (99, 64068), (109, 64035), (139, 63933), (145, 63915), (158, 63867), (161, 63858), (163, 63852), (172, 63798), (182, 63765), (185, 63759), (208, 63711), (234, 63612), (239, 63597),

Gene: GOATification\_67 Start: 45099, Stop: 46190, Start Num: 44

Candidate Starts for GOATification\_67:

(Start: 44 @45099 has 45 MA's), (78, 45231), (89, 45279), (109, 45360), (111, 45372), (112, 45381), (114, 45390), (149, 45513), (154, 45534), (162, 45561), (181, 45642), (186, 45660), (197, 45681), (215, 45759), (237, 45843), (261, 46008), (263, 46017), (272, 46161),

Gene: GRU1\_54 Start: 43981, Stop: 43202, Start Num: 27

Candidate Starts for GRU1\_54:

(Start: 27 @43981 has 11 MA's), (63, 43894), (139, 43555), (142, 43546), (152, 43513), (159, 43486), (168, 43456), (181, 43402), (183, 43396), (186, 43384), (197, 43369), (210, 43342), (219, 43306),

Gene: GTE5\_54 Start: 45013, Stop: 44234, Start Num: 27

Candidate Starts for GTE5\_54:

(Start: 27 @45013 has 11 MA's), (63, 44926), (139, 44587), (142, 44578), (152, 44545), (159, 44518), (168, 44488), (181, 44434), (183, 44428), (186, 44416), (210, 44374), (219, 44338),

Gene: GTE8\_54 Start: 45279, Stop: 44458, Start Num: 40

Candidate Starts for GTE8\_54:

(26, 45306), (Start: 40 @45279 has 26 MA's), (63, 45207), (108, 44985), (142, 44844), (145, 44835), (159, 44784), (168, 44748), (181, 44694), (186, 44676), (197, 44661), (233, 44535),

Gene: Gagieri\_63 Start: 48427, Stop: 47585, Start Num: 47

Candidate Starts for Gagieri\_63:

(29, 48457), (31, 48454), (Start: 47 @48427 has 7 MA's), (63, 48367), (89, 48247), (90, 48244), (108, 48157), (112, 48133), (115, 48124), (122, 48106), (128, 48082), (140, 48022), (145, 48007), (170, 47911), (181, 47866), (186, 47848), (197, 47833), (226, 47719), (238, 47683), (244, 47662),

Gene: Gallia\_67 Start: 52584, Stop: 51811, Start Num: 47

Candidate Starts for Gallia\_67:

(Start: 47 @52584 has 7 MA's), (63, 52527), (92, 52383), (112, 52290), (140, 52185), (157, 52125), (170, 52074), (183, 52023), (205, 52005), (206, 52002), (224, 51924),

Gene: Genamy16\_70 Start: 44473, Stop: 45543, Start Num: 44

Candidate Starts for Genamy16\_70:

(Start: 44 @44473 has 45 MA's), (71, 44569), (78, 44605), (89, 44653), (111, 44746), (112, 44755), (114, 44764), (149, 44887), (154, 44908), (162, 44935), (181, 45016), (186, 45034), (197, 45055), (215, 45133), (237, 45217), (272, 45514),

Gene: Gibbin\_69 Start: 45904, Stop: 46995, Start Num: 44

Candidate Starts for Gibbin\_69:

(Start: 44 @45904 has 45 MA's), (78, 46036), (89, 46084), (111, 46177), (112, 46186), (114, 46195), (149, 46318), (154, 46339), (162, 46366), (181, 46447), (186, 46465), (197, 46486), (215, 46564), (237, 46648), (261, 46813), (263, 46822), (272, 46966),

Gene: Gibson\_64 Start: 46180, Stop: 45395, Start Num: 51

Candidate Starts for Gibson\_64:

(Start: 51 @46180 has 9 MA's), (63, 46126), (66, 46117), (70, 46090), (73, 46066), (85, 46018), (110, 45913), (133, 45814), (134, 45808), (146, 45769), (152, 45748), (170, 45676), (181, 45631), (183, 45625), (195, 45607), (209, 45580), (227, 45508),

Gene: Gilda\_45 Start: 30168, Stop: 31013, Start Num: 52

Candidate Starts for Gilda\_45:

(6, 29742), (10, 29772), (14, 29904), (Start: 52 @30168 has 61 MA's), (63, 30222), (70, 30258), (73, 30285), (83, 30330), (85, 30333), (94, 30378), (131, 30534), (140, 30570), (143, 30579), (144, 30582), (175, 30711), (181, 30726), (223, 30831), (235, 30873),

Gene: Giuseppe\_60 Start: 44457, Stop: 45317, Start Num: 52

Candidate Starts for Giuseppe\_60:

(25, 44385), (Start: 52 @44457 has 61 MA's), (61, 44502), (65, 44514), (69, 44532), (70, 44544), (73, 44568), (74, 44571), (109, 44724), (112, 44745), (114, 44754), (118, 44760), (140, 44850), (141, 44853), (144, 44862), (151, 44883), (176, 44994), (181, 45006), (186, 45024), (208, 45075), (211, 45084), (217, 45114), (218, 45117),

Gene: GodonK\_178 Start: 89500, Stop: 88790, Start Num: 39

Candidate Starts for GodonK\_178:

(Start: 39 @89500 has 13 MA's), (Start: 51 @89479 has 9 MA's), (64, 89419), (99, 89263), (109, 89230), (112, 89209), (118, 89194), (130, 89167), (135, 89140), (139, 89128), (142, 89119), (150, 89095), (161, 89053), (172, 88996), (173, 88993), (179, 88972), (182, 88963), (208, 88912), (242, 88795),

Gene: GoldenEssence\_90 Start: 78275, Stop: 79084, Start Num: 39

Candidate Starts for GoldenEssence\_90:

(Start: 39 @78275 has 13 MA's), (69, 78380), (138, 78650), (161, 78728), (231, 78959), (232, 78962), (247, 78995), (257, 79061), (258, 79079),

Gene: Greenbelt\_62 Start: 42280, Stop: 41495, Start Num: 51

Candidate Starts for Greenbelt\_62:

(Start: 51 @42280 has 9 MA's), (63, 42226), (65, 42220), (70, 42190), (76, 42154), (146, 41869), (152, 41848), (159, 41821), (181, 41731), (183, 41725), (195, 41707), (213, 41671), (227, 41608), (236, 41581),

Gene: Gretellyn\_67 Start: 45889, Stop: 46959, Start Num: 44

Candidate Starts for Gretellyn\_67:

(Start: 44 @45889 has 45 MA's), (78, 46021), (89, 46069), (111, 46162), (112, 46171), (114, 46180), (149, 46303), (154, 46324), (162, 46351), (181, 46432), (186, 46450), (197, 46471), (215, 46549), (237, 46633), (261, 46798), (272, 46930),

Gene: GrootJr\_67 Start: 51436, Stop: 50615, Start Num: 40

Candidate Starts for GrootJr\_67:

(26, 51463), (Start: 40 @51436 has 26 MA's), (63, 51364), (108, 51142), (142, 51001), (145, 50992), (159, 50941), (168, 50905), (181, 50851), (186, 50833), (197, 50818), (232, 50695),

Gene: Gumball\_59 Start: 44949, Stop: 45809, Start Num: 52

Candidate Starts for Gumball\_59:

(25, 44877), (Start: 52 @44949 has 61 MA's), (61, 44994), (65, 45006), (69, 45024), (70, 45036), (73, 45060), (74, 45063), (109, 45216), (112, 45237), (114, 45246), (118, 45252), (140, 45342), (141, 45345), (144, 45354), (151, 45375), (176, 45486), (181, 45498), (186, 45516), (208, 45567), (211, 45576), (217, 45606), (218, 45609),

Gene: Hager\_46 Start: 29593, Stop: 30441, Start Num: 52

Candidate Starts for Hager\_46:

(7, 29173), (8, 29188), (9, 29191), (10, 29197), (Start: 52 @29593 has 61 MA's), (60, 29635), (63, 29647), (70, 29683), (73, 29710), (83, 29755), (85, 29758), (94, 29803), (131, 29959), (140, 29995), (143, 30004), (144, 30007), (153, 30040), (175, 30136), (181, 30151), (223, 30256), (235, 30298),

Gene: Haunter\_45 Start: 29551, Stop: 30396, Start Num: 52

Candidate Starts for Haunter\_45:

(6, 29125), (10, 29155), (11, 29182), (13, 29251), (14, 29287), (Start: 52 @29551 has 61 MA's), (63, 29605), (70, 29641), (73, 29668), (83, 29713), (85, 29716), (94, 29761), (131, 29917), (140, 29953), (143, 29962), (144, 29965), (175, 30094), (181, 30109), (223, 30214), (225, 30220), (235, 30256),

Gene: Hawkeye\_66 Start: 44818, Stop: 45684, Start Num: 55

Candidate Starts for Hawkeye\_66:

(30, 44773), (49, 44806), (Start: 52 @44815 has 61 MA's), (Start: 55 @44818 has 3 MA's), (74, 44929), (79, 44962), (109, 45082), (111, 45094), (112, 45103), (114, 45112), (118, 45118), (140, 45208), (141, 45211), (144, 45220), (157, 45268), (181, 45364), (186, 45382), (208, 45436), (211, 45445), (243, 45556),

Gene: Helpful\_62 Start: 44818, Stop: 45678, Start Num: 52

Candidate Starts for Helpful\_62:

(25, 44746), (Start: 52 @44818 has 61 MA's), (61, 44863), (65, 44875), (69, 44893), (70, 44905), (73, 44929), (74, 44932), (109, 45085), (112, 45106), (114, 45115), (118, 45121), (140, 45211), (141, 45214), (144, 45223), (151, 45244), (176, 45355), (181, 45367), (186, 45385), (208, 45436), (211, 45445), (217, 45475), (218, 45478),

Gene: Hiddenleaf\_45 Start: 29369, Stop: 30214, Start Num: 52

Candidate Starts for Hiddenleaf\_45:

(1, 28808), (5, 28904), (6, 28943), (7, 28949), (10, 28973), (13, 29069), (14, 29105), (Start: 52 @29369 has 61 MA's), (63, 29423), (70, 29459), (73, 29486), (83, 29531), (85, 29534), (94, 29579), (131, 29735), (140, 29771), (143, 29780), (144, 29783), (175, 29912), (181, 29927), (223, 30032), (235, 30074),

Gene: HomeFry\_71 Start: 49956, Stop: 49168, Start Num: 27

Candidate Starts for HomeFry\_71:

(Start: 27 @49956 has 11 MA's), (34, 49944), (63, 49860), (94, 49713), (112, 49626), (139, 49524), (152, 49482), (153, 49476), (159, 49455), (181, 49365), (186, 49347), (197, 49332), (218, 49272),

Gene: HubbaBubba\_60 Start: 46888, Stop: 46091, Start Num: 40

Candidate Starts for HubbaBubba\_60:

(Start: 40 @46888 has 26 MA's), (63, 46813), (132, 46507), (139, 46477), (142, 46468), (145, 46459), (159, 46405), (170, 46360), (173, 46339), (177, 46327), (181, 46315), (186, 46297), (218, 46216), (240, 46138),

Gene: IDyn\_64 Start: 48323, Stop: 47526, Start Num: 40

Candidate Starts for IDyn\_64:

(26, 48350), (Start: 40 @48323 has 26 MA's), (63, 48248), (100, 48074), (132, 47942), (139, 47912), (142, 47903), (145, 47894), (159, 47840), (170, 47795), (173, 47774), (177, 47762), (181, 47750), (186, 47732), (218, 47651), (240, 47573),

Gene: Indlulamithi\_69 Start: 49597, Stop: 50433, Start Num: 36

Candidate Starts for Indlulamithi\_69:

(Start: 36 @49597 has 4 MA's), (54, 49612), (110, 49894), (118, 49930), (122, 49942), (125, 49951), (126, 49954), (141, 50023), (142, 50026), (152, 50059), (153, 50065), (159, 50086), (160, 50089), (173, 50152), (180, 50173), (181, 50176), (186, 50194), (192, 50212), (214, 50281), (218, 50302),

(225, 50329), (239, 50377), (246, 50398),

Gene: JDawG\_44 Start: 29786, Stop: 30631, Start Num: 52

Candidate Starts for JDawG\_44:

(1, 29225), (5, 29321), (6, 29360), (13, 29486), (14, 29522), (Start: 52 @29786 has 61 MA's), (63, 29840), (70, 29876), (73, 29903), (83, 29948), (85, 29951), (94, 29996), (131, 30152), (140, 30188), (143, 30197), (144, 30200), (175, 30329), (181, 30344), (223, 30449), (235, 30491),

Gene: Jalebi\_66 Start: 46242, Stop: 47312, Start Num: 44

Candidate Starts for Jalebi\_66:

(Start: 44 @46242 has 45 MA's), (78, 46374), (89, 46422), (109, 46503), (111, 46515), (112, 46524), (114, 46533), (149, 46656), (154, 46677), (162, 46704), (181, 46785), (186, 46803), (197, 46824), (215, 46902), (237, 46986), (252, 47064), (261, 47151), (272, 47283),

Gene: Jamemuya19\_66 Start: 44078, Stop: 45148, Start Num: 44

Candidate Starts for Jamemuya19\_66:

(Start: 44 @44078 has 45 MA's), (71, 44174), (78, 44210), (89, 44258), (111, 44351), (112, 44360), (114, 44369), (149, 44492), (154, 44513), (162, 44540), (181, 44621), (186, 44639), (197, 44660), (215, 44738), (237, 44822), (272, 45119),

Gene: Jifall16\_64 Start: 51698, Stop: 50877, Start Num: 40

Candidate Starts for Jifall16\_64:

(Start: 40 @51698 has 26 MA's), (63, 51626), (108, 51404), (142, 51263), (145, 51254), (159, 51203), (168, 51167), (181, 51113), (186, 51095), (197, 51080), (232, 50957),

Gene: JingleBells\_45 Start: 29520, Stop: 30365, Start Num: 52

Candidate Starts for JingleBells\_45:

(6, 29094), (7, 29100), (10, 29124), (13, 29220), (14, 29256), (Start: 52 @29520 has 61 MA's), (63, 29574), (70, 29610), (73, 29637), (83, 29682), (85, 29685), (94, 29730), (131, 29886), (140, 29922), (143, 29931), (144, 29934), (175, 30063), (181, 30078), (223, 30183), (235, 30225),

Gene: KSunshine22\_98 Start: 81330, Stop: 82055, Start Num: 67

Candidate Starts for KSunshine22\_98:

(Start: 39 @81237 has 13 MA's), (Start: 52 @81264 has 61 MA's), (64, 81321), (67, 81330), (68, 81336), (138, 81612), (156, 81675), (161, 81690), (182, 81780), (206, 81825), (222, 81894), (231, 81921), (257, 82032),

Gene: Kabluna\_68 Start: 51031, Stop: 50168, Start Num: 40

Candidate Starts for Kabluna\_68:

(22, 51109), (Start: 40 @51031 has 26 MA's), (80, 50869), (108, 50743), (142, 50602), (152, 50569), (159, 50542), (173, 50476), (181, 50452), (186, 50434), (212, 50380), (219, 50350), (230, 50305),

Gene: KandZ\_58 Start: 44615, Stop: 45475, Start Num: 52

Candidate Starts for KandZ\_58:

(25, 44543), (Start: 52 @44615 has 61 MA's), (61, 44660), (65, 44672), (69, 44690), (70, 44702), (73, 44726), (74, 44729), (109, 44882), (112, 44903), (114, 44912), (118, 44918), (140, 45008), (141, 45011), (144, 45020), (151, 45041), (176, 45152), (181, 45164), (186, 45182), (208, 45233), (211, 45242), (217, 45272), (218, 45275),

Gene: Karate\_44 Start: 30169, Stop: 31014, Start Num: 52

Candidate Starts for Karate\_44:

(5, 29704), (6, 29743), (10, 29773), (14, 29905), (Start: 52 @30169 has 61 MA's), (63, 30223), (70, 30259), (73, 30286), (83, 30331), (85, 30334), (94, 30379), (131, 30535), (140, 30571), (143, 30580),

(144, 30583), (175, 30712), (181, 30727), (223, 30832), (235, 30874),

Gene: Kate\_46 Start: 30176, Stop: 31024, Start Num: 52

Candidate Starts for Kate\_46:

(6, 29750), (10, 29780), (14, 29912), (Start: 52 @30176 has 61 MA's), (63, 30230), (70, 30266), (73, 30293), (83, 30338), (85, 30341), (94, 30386), (131, 30542), (140, 30578), (143, 30587), (144, 30590), (175, 30719), (181, 30734), (223, 30839), (235, 30881),

Gene: KidneyBean\_65 Start: 51822, Stop: 51001, Start Num: 40

Candidate Starts for KidneyBean\_65:

(Start: 40 @51822 has 26 MA's), (63, 51750), (108, 51528), (142, 51387), (145, 51378), (159, 51327), (168, 51291), (181, 51237), (186, 51219), (197, 51204), (232, 51081),

Gene: Kimchi1738\_53 Start: 45055, Stop: 44291, Start Num: 44

Candidate Starts for Kimchi1738\_53:

(Start: 44 @45055 has 45 MA's), (94, 44836), (168, 44554), (181, 44500), (211, 44455), (230, 44371),

Gene: Konstantine\_76 Start: 53396, Stop: 54475, Start Num: 48

Candidate Starts for Konstantine\_76:

(Start: 48 @53396 has 9 MA's), (57, 53414), (63, 53450), (85, 53558), (95, 53606), (100, 53627), (101, 53633), (112, 53693), (114, 53702), (118, 53708), (144, 53810), (153, 53843), (157, 53858), (167, 53897), (174, 53936), (181, 53954), (186, 53972), (187, 53975), (191, 53984), (212, 54050), (217, 54074), (263, 54266), (270, 54413), (271, 54416), (274, 54455), (275, 54464),

Gene: Kors\_49 Start: 31190, Stop: 32032, Start Num: 45

Candidate Starts for Kors\_49:

(Start: 45 @31190 has 12 MA's), (65, 31253), (80, 31337), (83, 31349), (85, 31352), (123, 31514), (140, 31586), (158, 31649), (161, 31658), (175, 31727), (181, 31742), (235, 31889),

Gene: Krampus\_45 Start: 30176, Stop: 31024, Start Num: 52

Candidate Starts for Krampus\_45:

(6, 29750), (10, 29780), (14, 29912), (Start: 52 @30176 has 61 MA's), (63, 30230), (70, 30266), (73, 30293), (83, 30338), (85, 30341), (94, 30386), (131, 30542), (140, 30578), (143, 30587), (144, 30590), (175, 30719), (181, 30734), (223, 30839), (235, 30881),

Gene: Kurt\_65 Start: 52057, Stop: 51236, Start Num: 40

Candidate Starts for Kurt\_65:

(26, 52084), (Start: 40 @52057 has 26 MA's), (63, 51985), (108, 51763), (142, 51622), (145, 51613), (159, 51562), (168, 51526), (181, 51472), (186, 51454), (197, 51439), (232, 51316),

Gene: Labelle\_84 Start: 54626, Stop: 55684, Start Num: 45

Candidate Starts for Labelle\_84:

(Start: 45 @54626 has 12 MA's), (64, 54683), (65, 54686), (70, 54716), (80, 54773), (85, 54788), (112, 54917), (121, 54941), (132, 54995), (137, 55019), (173, 55163), (174, 55169), (176, 55175), (180, 55184), (181, 55187), (186, 55205), (198, 55232), (212, 55292), (223, 55340), (237, 55388), (243, 55406), (251, 55466), (256, 55487), (265, 55595), (266, 55610),

Gene: Lambo\_65 Start: 44896, Stop: 45987, Start Num: 44

Candidate Starts for Lambo\_65:

(Start: 44 @44896 has 45 MA's), (78, 45028), (89, 45076), (111, 45169), (112, 45178), (114, 45187), (149, 45310), (154, 45331), (162, 45358), (181, 45439), (186, 45457), (197, 45478), (215, 45556), (237, 45640), (261, 45805), (263, 45814), (272, 45958),

Gene: Laure\_108 Start: 77202, Stop: 78011, Start Num: 39

Candidate Starts for Laure\_108:

(Start: 39 @77202 has 13 MA's), (Start: 52 @77229 has 61 MA's), (138, 77577), (157, 77640), (161, 77652), (176, 77724), (222, 77859), (231, 77886), (232, 77889), (255, 77970), (257, 77988),

Gene: LavAbarElk\_67 Start: 44636, Stop: 45706, Start Num: 44

Candidate Starts for LavAbarElk\_67:

(Start: 44 @44636 has 45 MA's), (78, 44768), (89, 44816), (109, 44897), (111, 44909), (112, 44918), (114, 44927), (149, 45050), (154, 45071), (162, 45098), (181, 45179), (186, 45197), (197, 45218), (215, 45296), (237, 45380), (261, 45545), (272, 45677),

Gene: LeoJr\_103 Start: 84544, Stop: 85377, Start Num: 39

Candidate Starts for LeoJr\_103:

(Start: 39 @84544 has 13 MA's), (64, 84628), (67, 84637), (68, 84643), (92, 84748), (138, 84919), (161, 84997), (182, 85087), (204, 85129), (222, 85204), (229, 85225), (231, 85231),

Gene: Leopard\_75 Start: 52296, Stop: 53216, Start Num: 43

Candidate Starts for Leopard\_75:

(Start: 43 @52296 has 2 MA's), (Start: 55 @52311 has 3 MA's), (69, 52383), (70, 52395), (73, 52419), (74, 52422), (80, 52452), (95, 52515), (110, 52572), (112, 52590), (114, 52599), (118, 52605), (127, 52635), (167, 52794), (169, 52803), (170, 52806), (181, 52851), (186, 52869), (208, 52917), (219, 52965), (228, 53004), (253, 53109),

Gene: Lila22\_68 Start: 45848, Stop: 46939, Start Num: 44

Candidate Starts for Lila22\_68:

(Start: 44 @45848 has 45 MA's), (78, 45980), (89, 46028), (111, 46121), (112, 46130), (114, 46139), (149, 46262), (154, 46283), (162, 46310), (181, 46391), (186, 46409), (197, 46430), (215, 46508), (237, 46592), (261, 46757), (263, 46766), (272, 46910),

Gene: LilyPad\_58 Start: 43001, Stop: 43912, Start Num: 42

Candidate Starts for LilyPad\_58:

(Start: 42 @43001 has 9 MA's), (64, 43058), (65, 43061), (70, 43091), (104, 43241), (106, 43250), (112, 43295), (118, 43310), (122, 43322), (126, 43334), (133, 43373), (136, 43388), (142, 43406), (147, 43421), (173, 43532), (174, 43538), (181, 43556), (190, 43580), (193, 43586), (202, 43616), (224, 43709), (230, 43733), (260, 43883),

Gene: LittleFella\_63 Start: 44521, Stop: 45468, Start Num: 42

Candidate Starts for LittleFella\_63:

(Start: 42 @44521 has 9 MA's), (46, 44527), (73, 44644), (112, 44824), (118, 44839), (122, 44851), (158, 44992), (167, 45028), (181, 45085),

Gene: Lizz\_64 Start: 46003, Stop: 45221, Start Num: 51

Candidate Starts for Lizz\_64:

(Start: 51 @46003 has 9 MA's), (63, 45949), (66, 45940), (70, 45913), (73, 45889), (85, 45841), (110, 45736), (133, 45637), (134, 45631), (146, 45592), (152, 45571), (170, 45499), (181, 45454), (183, 45448), (195, 45430), (213, 45394), (227, 45331),

Gene: Lollipop1437\_69 Start: 52704, Stop: 51925, Start Num: 27

Candidate Starts for Lollipop1437\_69:

(Start: 27 @52704 has 11 MA's), (63, 52620), (142, 52272), (159, 52212), (168, 52176), (181, 52122), (186, 52104), (207, 52071), (210, 52062), (228, 51987), (232, 51975),

Gene: LordBart\_49 Start: 31099, Stop: 31941, Start Num: 45

Candidate Starts for LordBart\_49:

(Start: 45 @31099 has 12 MA's), (65, 31162), (80, 31246), (83, 31258), (85, 31261), (123, 31423), (131, 31459), (140, 31495), (158, 31558), (161, 31567), (175, 31636), (181, 31651), (235, 31798),

Gene: LuckyLeo\_64 Start: 44646, Stop: 45731, Start Num: 44

Candidate Starts for LuckyLeo\_64:

(Start: 44 @44646 has 45 MA's), (70, 44739), (78, 44778), (89, 44826), (112, 44928), (114, 44937), (149, 45060), (154, 45081), (158, 45096), (162, 45108), (181, 45189), (186, 45207), (197, 45228), (201, 45249), (215, 45306), (237, 45390), (269, 45690),

Gene: MacGully\_73 Start: 51597, Stop: 50779, Start Num: 47

Candidate Starts for MacGully\_73:

(16, 51750), (23, 51672), (Start: 47 @51597 has 7 MA's), (Start: 51 @51591 has 9 MA's), (63, 51537), (89, 51411), (112, 51294), (122, 51267), (126, 51255), (132, 51216), (140, 51183), (156, 51126), (189, 51003), (209, 50958), (249, 50805),

Gene: Madi\_56 Start: 41882, Stop: 42811, Start Num: 42

Candidate Starts for Madi\_56:

(Start: 42 @41882 has 9 MA's), (64, 41939), (70, 41972), (104, 42122), (106, 42131), (109, 42155), (112, 42176), (118, 42191), (122, 42203), (126, 42215), (133, 42254), (136, 42269), (147, 42302), (173, 42413), (174, 42419), (181, 42437), (190, 42461), (193, 42467), (202, 42497), (208, 42521), (230, 42614), (260, 42782),

Gene: Madruga\_83 Start: 54580, Stop: 55638, Start Num: 45

Candidate Starts for Madruga\_83:

(Start: 45 @54580 has 12 MA's), (64, 54637), (65, 54640), (70, 54670), (80, 54727), (85, 54742), (112, 54871), (121, 54895), (132, 54949), (137, 54973), (173, 55117), (174, 55123), (176, 55129), (180, 55138), (181, 55141), (186, 55159), (198, 55186), (212, 55246), (223, 55294), (237, 55342), (243, 55360), (251, 55420), (256, 55441), (265, 55549), (266, 55564),

Gene: Mareelih\_164 Start: 92946, Stop: 92203, Start Num: 37

Candidate Starts for Mareelih\_164:

(Start: 37 @92946 has 5 MA's), (Start: 52 @92919 has 61 MA's), (67, 92853), (72, 92811), (76, 92796), (81, 92778), (99, 92703), (139, 92568), (142, 92559), (145, 92550), (148, 92541), (157, 92505), (161, 92493), (164, 92484), (172, 92433), (173, 92430), (182, 92400), (185, 92394), (208, 92346), (217, 92304), (220, 92292), (228, 92265), (232, 92253),

Gene: Marietta\_66 Start: 48435, Stop: 47638, Start Num: 40

Candidate Starts for Marietta\_66:

(Start: 40 @48435 has 26 MA's), (63, 48360), (100, 48186), (132, 48054), (139, 48024), (142, 48015), (145, 48006), (152, 47979), (159, 47952), (170, 47907), (177, 47874), (181, 47862), (186, 47844), (218, 47763), (240, 47685),

Gene: Maselop\_64 Start: 48423, Stop: 47572, Start Num: 47

Candidate Starts for Maselop\_64:

(Start: 47 @48423 has 7 MA's), (63, 48363), (89, 48243), (93, 48231), (112, 48129), (115, 48120), (122, 48102), (126, 48090), (140, 48018), (181, 47862), (186, 47844), (189, 47838), (226, 47715), (238, 47679), (244, 47658),

Gene: Megatron06\_73 Start: 53142, Stop: 54218, Start Num: 48

Candidate Starts for Megatron06\_73:

(Start: 48 @53142 has 9 MA's), (53, 53148), (57, 53160), (63, 53196), (85, 53304), (95, 53352), (102, 53382), (112, 53439), (114, 53448), (118, 53454), (144, 53556), (153, 53589), (157, 53604), (167,

53643), (174, 53682), (181, 53700), (186, 53718), (187, 53721), (191, 53730), (212, 53796), (217, 53820), (263, 54009), (270, 54156), (271, 54159), (274, 54198), (275, 54207),

Gene: MerCougar\_67 Start: 52388, Stop: 51525, Start Num: 40

Candidate Starts for MerCougar\_67:

(Start: 40 @52388 has 26 MA's), (108, 52100), (122, 52049), (142, 51959), (154, 51917), (159, 51899), (168, 51863), (173, 51833), (181, 51809), (186, 51791),

Gene: Mima20\_67 Start: 45405, Stop: 46475, Start Num: 44

Candidate Starts for Mima20\_67:

(Start: 44 @45405 has 45 MA's), (78, 45537), (89, 45585), (109, 45666), (111, 45678), (112, 45687), (114, 45696), (149, 45819), (154, 45840), (162, 45867), (181, 45948), (186, 45966), (197, 45987), (215, 46065), (237, 46149), (261, 46314), (272, 46446),

Gene: Mimi\_104 Start: 83830, Stop: 84639, Start Num: 39

Candidate Starts for Mimi\_104:

(Start: 39 @83830 has 13 MA's), (69, 83935), (138, 84205), (161, 84283), (221, 84484), (231, 84514), (232, 84517), (245, 84547), (257, 84616), (258, 84634),

Gene: MoiGyank\_70 Start: 46170, Stop: 47240, Start Num: 44

Candidate Starts for MoiGyank\_70:

(Start: 44 @46170 has 45 MA's), (78, 46302), (89, 46350), (109, 46431), (111, 46443), (112, 46452), (114, 46461), (149, 46584), (154, 46605), (162, 46632), (181, 46713), (186, 46731), (197, 46752), (215, 46830), (237, 46914), (252, 46992), (261, 47079), (272, 47211),

Gene: MontyDev\_72 Start: 52628, Stop: 53458, Start Num: 38

Candidate Starts for MontyDev\_72:

(Start: 38 @52628 has 9 MA's), (58, 52673), (64, 52703), (70, 52736), (73, 52760), (85, 52808), (90, 52829), (109, 52922), (117, 52952), (119, 52955), (125, 52967), (148, 53051), (155, 53081), (174, 53165), (176, 53171), (181, 53183), (186, 53201), (194, 53228), (196, 53231), (218, 53327), (223, 53348), (230, 53375),

Gene: Mopey\_60 Start: 44493, Stop: 45353, Start Num: 52

Candidate Starts for Mopey\_60:

(25, 44421), (Start: 52 @44493 has 61 MA's), (61, 44538), (65, 44550), (69, 44568), (70, 44580), (73, 44604), (74, 44607), (109, 44760), (112, 44781), (114, 44790), (118, 44796), (140, 44886), (141, 44889), (144, 44898), (151, 44919), (176, 45030), (181, 45042), (186, 45060), (208, 45111), (211, 45120), (217, 45150), (218, 45153),

Gene: MortySmith\_43 Start: 29204, Stop: 30049, Start Num: 52

Candidate Starts for MortySmith\_43:

(6, 28778), (10, 28808), (11, 28835), (13, 28904), (14, 28940), (Start: 52 @29204 has 61 MA's), (63, 29258), (70, 29294), (73, 29321), (83, 29366), (85, 29369), (94, 29414), (131, 29570), (140, 29606), (143, 29615), (144, 29618), (175, 29747), (181, 29762), (223, 29867), (235, 29909),

Gene: MrMiyagi\_77 Start: 49209, Stop: 50072, Start Num: 24

Candidate Starts for MrMiyagi\_77:

(Start: 24 @49209 has 2 MA's), (74, 49395), (82, 49437), (84, 49440), (102, 49518), (107, 49548), (118, 49590), (126, 49614), (139, 49677), (142, 49686), (148, 49704), (153, 49725), (178, 49827), (181, 49836), (188, 49860), (200, 49893), (210, 49920), (216, 49950), (218, 49959), (224, 49983), (239, 50034),

Gene: NadineRae\_65 Start: 48044, Stop: 47247, Start Num: 40

Candidate Starts for NadineRae\_65:

(Start: 40 @48044 has 26 MA's), (63, 47969), (132, 47663), (139, 47633), (142, 47624), (145, 47615), (159, 47561), (170, 47516), (173, 47495), (177, 47483), (181, 47471), (186, 47453), (218, 47372), (240, 47294),

Gene: NarutoRun\_45 Start: 30144, Stop: 30992, Start Num: 52

Candidate Starts for NarutoRun\_45:

(6, 29718), (10, 29748), (14, 29880), (Start: 52 @30144 has 61 MA's), (63, 30198), (70, 30234), (73, 30261), (83, 30306), (85, 30309), (94, 30354), (131, 30510), (140, 30546), (143, 30555), (144, 30558), (175, 30687), (181, 30702), (223, 30807), (235, 30849),

Gene: NatB6\_65 Start: 51126, Stop: 50305, Start Num: 40

Candidate Starts for NatB6\_65:

(26, 51153), (Start: 40 @51126 has 26 MA's), (63, 51054), (108, 50832), (142, 50691), (145, 50682), (159, 50631), (168, 50595), (181, 50541), (186, 50523), (197, 50508), (232, 50385),

Gene: Neptune\_45 Start: 30144, Stop: 30992, Start Num: 52

Candidate Starts for Neptune\_45:

(6, 29718), (10, 29748), (14, 29880), (Start: 52 @30144 has 61 MA's), (63, 30198), (70, 30234), (73, 30261), (83, 30306), (85, 30309), (94, 30354), (131, 30510), (140, 30546), (143, 30555), (144, 30558), (175, 30687), (181, 30702), (223, 30807), (235, 30849),

Gene: Nilo\_72 Start: 52985, Stop: 53815, Start Num: 38

Candidate Starts for Nilo\_72:

(Start: 38 @52985 has 9 MA's), (58, 53030), (64, 53060), (70, 53093), (73, 53117), (85, 53165), (90, 53186), (109, 53279), (117, 53309), (119, 53312), (125, 53324), (148, 53408), (155, 53438), (174, 53522), (176, 53528), (181, 53540), (186, 53558), (194, 53585), (196, 53588), (218, 53684), (223, 53705), (230, 53732),

Gene: NorManre\_71 Start: 46296, Stop: 47387, Start Num: 44

Candidate Starts for NorManre\_71:

(Start: 44 @46296 has 45 MA's), (78, 46428), (89, 46476), (111, 46569), (112, 46578), (114, 46587), (149, 46710), (154, 46731), (162, 46758), (181, 46839), (186, 46857), (197, 46878), (215, 46956), (237, 47040), (261, 47205), (263, 47214), (272, 47358),

Gene: NosilaM\_67 Start: 51702, Stop: 50839, Start Num: 40

Candidate Starts for NosilaM\_67:

(Start: 40 @51702 has 26 MA's), (80, 51540), (108, 51414), (142, 51273), (152, 51240), (159, 51213), (161, 51207), (173, 51147), (181, 51123), (186, 51105), (212, 51051), (219, 51021), (230, 50976),

Gene: Nova\_58 Start: 44945, Stop: 45805, Start Num: 52

Candidate Starts for Nova\_58:

(25, 44873), (Start: 52 @44945 has 61 MA's), (61, 44990), (65, 45002), (69, 45020), (70, 45032), (73, 45056), (74, 45059), (109, 45212), (112, 45233), (114, 45242), (118, 45248), (140, 45338), (141, 45341), (144, 45350), (151, 45371), (176, 45482), (181, 45494), (186, 45512), (208, 45563), (211, 45572), (217, 45602), (218, 45605),

Gene: NovaSharks\_69 Start: 44064, Stop: 45134, Start Num: 44

Candidate Starts for NovaSharks\_69:

(Start: 44 @44064 has 45 MA's), (71, 44160), (78, 44196), (89, 44244), (111, 44337), (112, 44346), (114, 44355), (149, 44478), (154, 44499), (162, 44526), (181, 44607), (186, 44625), (197, 44646), (215, 44724), (237, 44808), (272, 45105),

Gene: NovumRegina\_65 Start: 51435, Stop: 50614, Start Num: 40

Candidate Starts for NovumRegina\_65:

(26, 51462), (Start: 40 @51435 has 26 MA's), (63, 51363), (108, 51141), (142, 51000), (145, 50991), (159, 50940), (168, 50904), (181, 50850), (186, 50832), (197, 50817), (232, 50694),

Gene: Oaker\_72 Start: 53171, Stop: 54247, Start Num: 48

Candidate Starts for Oaker\_72:

(Start: 48 @53171 has 9 MA's), (53, 53177), (63, 53225), (85, 53333), (95, 53381), (102, 53411), (112, 53468), (114, 53477), (118, 53483), (144, 53585), (153, 53618), (157, 53633), (167, 53672), (174, 53711), (181, 53729), (186, 53747), (187, 53750), (191, 53759), (212, 53825), (217, 53849), (263, 54038), (270, 54185), (271, 54188), (274, 54227), (275, 54236),

Gene: OhDear\_45 Start: 30142, Stop: 30990, Start Num: 52

Candidate Starts for OhDear\_45:

(6, 29716), (10, 29746), (14, 29878), (Start: 52 @30142 has 61 MA's), (63, 30196), (70, 30232), (73, 30259), (83, 30304), (85, 30307), (94, 30352), (131, 30508), (140, 30544), (143, 30553), (144, 30556), (175, 30685), (181, 30700), (223, 30805), (235, 30847),

Gene: Onyinye\_76 Start: 52178, Stop: 53083, Start Num: 55

Candidate Starts for Onyinye\_76:

(Start: 43 @52163 has 2 MA's), (Start: 55 @52178 has 3 MA's), (69, 52250), (70, 52262), (73, 52286), (74, 52289), (80, 52319), (95, 52382), (110, 52439), (112, 52457), (114, 52466), (118, 52472), (127, 52502), (167, 52661), (169, 52670), (170, 52673), (181, 52718), (186, 52736), (208, 52784), (219, 52832), (228, 52871), (253, 52976), (259, 53024),

Gene: OtterstedtS21\_67 Start: 45230, Stop: 46321, Start Num: 44

Candidate Starts for OtterstedtS21\_67:

(Start: 44 @45230 has 45 MA's), (78, 45362), (89, 45410), (109, 45491), (111, 45503), (112, 45512), (114, 45521), (149, 45644), (154, 45665), (162, 45692), (181, 45773), (186, 45791), (197, 45812), (215, 45890), (237, 45974), (261, 46139), (263, 46148), (272, 46292),

Gene: Outis\_66 Start: 51894, Stop: 51040, Start Num: 45

Candidate Starts for Outis\_66:

(Start: 45 @51894 has 12 MA's), (108, 51615), (122, 51564), (142, 51474), (154, 51432), (159, 51414), (168, 51378), (173, 51348), (181, 51324), (186, 51306),

Gene: OverHedge\_45 Start: 30134, Stop: 30982, Start Num: 52

Candidate Starts for OverHedge\_45:

(6, 29708), (10, 29738), (14, 29870), (Start: 52 @30134 has 61 MA's), (63, 30188), (70, 30224), (73, 30251), (83, 30296), (85, 30299), (94, 30344), (131, 30500), (140, 30536), (143, 30545), (144, 30548), (175, 30677), (181, 30692), (223, 30797), (235, 30839),

Gene: P1201\_70 Start: 52915, Stop: 52136, Start Num: 47

Candidate Starts for P1201\_70:

(Start: 47 @52915 has 7 MA's), (63, 52858), (64, 52855), (97, 52684), (112, 52621), (157, 52456), (170, 52405), (181, 52360), (183, 52354), (205, 52336),

Gene: PBI1\_56 Start: 44420, Stop: 45280, Start Num: 52

Candidate Starts for PBI1\_56:

(25, 44348), (Start: 52 @44420 has 61 MA's), (61, 44465), (65, 44477), (69, 44495), (70, 44507), (73, 44531), (74, 44534), (109, 44687), (112, 44708), (114, 44717), (118, 44723), (140, 44813), (141, 44816), (144, 44825), (151, 44846), (176, 44957), (181, 44969), (186, 44987), (208, 45038), (211, 45047), (217, 45077), (218, 45080),

Gene: PHTown\_64 Start: 46001, Stop: 45219, Start Num: 51

Candidate Starts for PHTown\_64:

(Start: 51 @46001 has 9 MA's), (63, 45947), (66, 45938), (70, 45911), (73, 45887), (85, 45839), (110, 45734), (133, 45635), (134, 45629), (146, 45590), (152, 45569), (170, 45497), (181, 45452), (183, 45446), (195, 45428), (213, 45392), (227, 45329),

Gene: PLOT\_59 Start: 44472, Stop: 45332, Start Num: 52

Candidate Starts for PLOT\_59:

(25, 44400), (Start: 52 @44472 has 61 MA's), (61, 44517), (65, 44529), (69, 44547), (70, 44559), (73, 44583), (74, 44586), (109, 44739), (112, 44760), (114, 44769), (118, 44775), (140, 44865), (141, 44868), (144, 44877), (151, 44898), (176, 45009), (181, 45021), (186, 45039), (208, 45090), (211, 45099), (217, 45129), (218, 45132),

Gene: Panchaali\_95 Start: 81223, Stop: 82020, Start Num: 52

Candidate Starts for Panchaali\_95:

(Start: 39 @81196 has 13 MA's), (Start: 52 @81223 has 61 MA's), (64, 81280), (67, 81289), (68, 81295), (138, 81571), (161, 81649), (182, 81739), (206, 81784), (222, 81853), (231, 81880), (257, 81997),

Gene: Papyrus\_70 Start: 52595, Stop: 53425, Start Num: 38

Candidate Starts for Papyrus\_70:

(Start: 38 @52595 has 9 MA's), (58, 52640), (64, 52670), (70, 52703), (73, 52727), (85, 52775), (90, 52796), (109, 52889), (117, 52919), (119, 52922), (125, 52934), (148, 53018), (155, 53048), (174, 53132), (176, 53138), (181, 53150), (186, 53168), (194, 53195), (196, 53198), (218, 53294), (223, 53315), (230, 53342),

Gene: ParvusTarda\_66 Start: 44602, Stop: 45693, Start Num: 44

Candidate Starts for ParvusTarda\_66:

(Start: 44 @44602 has 45 MA's), (78, 44734), (89, 44782), (111, 44875), (112, 44884), (114, 44893), (149, 45016), (154, 45037), (162, 45064), (181, 45145), (186, 45163), (197, 45184), (215, 45262), (237, 45346), (261, 45511), (263, 45520), (272, 45664),

Gene: Patbob\_103 Start: 84565, Stop: 85374, Start Num: 39

Candidate Starts for Patbob\_103:

(Start: 39 @84565 has 13 MA's), (69, 84670), (138, 84940), (161, 85018), (231, 85249), (232, 85252), (245, 85282), (247, 85285), (257, 85351), (258, 85369),

Gene: Patience\_85 Start: 55493, Stop: 56551, Start Num: 45

Candidate Starts for Patience\_85:

(Start: 45 @55493 has 12 MA's), (64, 55550), (65, 55553), (70, 55583), (80, 55640), (85, 55655), (112, 55784), (121, 55808), (132, 55862), (137, 55886), (173, 56030), (174, 56036), (176, 56042), (180, 56051), (181, 56054), (186, 56072), (198, 56099), (212, 56159), (223, 56207), (237, 56255), (243, 56273), (251, 56333), (256, 56354), (265, 56462), (266, 56477),

Gene: Patio\_67 Start: 51761, Stop: 50982, Start Num: 27

Candidate Starts for Patio\_67:

(Start: 27 @51761 has 11 MA's), (63, 51677), (142, 51329), (159, 51269), (168, 51233), (181, 51179), (186, 51161), (207, 51128), (210, 51119), (228, 51044), (232, 51032),

Gene: Patos\_71 Start: 46295, Stop: 47386, Start Num: 44

Candidate Starts for Patos\_71:

(Start: 44 @46295 has 45 MA's), (78, 46427), (89, 46475), (111, 46568), (112, 46577), (114, 46586), (149, 46709), (154, 46730), (162, 46757), (181, 46838), (186, 46856), (197, 46877), (215, 46955), (237, 47039), (261, 47204), (263, 47213), (272, 47357),

Gene: PauloDiaboli\_112 Start: 75754, Stop: 74960, Start Num: 41

Candidate Starts for PauloDiaboli\_112:

(Start: 41 @75754 has 2 MA's), (46, 75742), (59, 75691), (73, 75619), (76, 75607), (89, 75562), (90, 75559), (131, 75412), (138, 75382), (157, 75316), (161, 75304), (164, 75295), (171, 75247), (208, 75151), (231, 75055), (241, 75025), (248, 75004),

Gene: Pemberton\_68 Start: 48797, Stop: 48000, Start Num: 40

Candidate Starts for Pemberton\_68:

(19, 48896), (26, 48824), (Start: 40 @48797 has 26 MA's), (63, 48722), (100, 48548), (132, 48416), (139, 48386), (142, 48377), (145, 48368), (152, 48341), (159, 48314), (170, 48269), (177, 48236), (181, 48224), (186, 48206), (218, 48125), (240, 48047),

Gene: Penelope2018\_59 Start: 44490, Stop: 45350, Start Num: 52

Candidate Starts for Penelope2018\_59:

(25, 44418), (Start: 52 @44490 has 61 MA's), (61, 44535), (65, 44547), (69, 44565), (70, 44577), (73, 44601), (74, 44604), (109, 44757), (112, 44778), (114, 44787), (118, 44793), (140, 44883), (141, 44886), (144, 44895), (151, 44916), (176, 45027), (181, 45039), (186, 45057), (208, 45108), (211, 45117), (217, 45147), (218, 45150),

Gene: PeteyPab\_53 Start: 45339, Stop: 44575, Start Num: 44

Candidate Starts for PeteyPab\_53:

(Start: 44 @45339 has 45 MA's), (94, 45120), (112, 45045), (168, 44838), (181, 44784), (211, 44739), (230, 44655),

Gene: Phalaborwa\_62 Start: 44931, Stop: 45791, Start Num: 52

Candidate Starts for Phalaborwa\_62:

(25, 44859), (Start: 52 @44931 has 61 MA's), (65, 44988), (69, 45006), (70, 45018), (73, 45042), (74, 45045), (109, 45198), (112, 45219), (114, 45228), (118, 45234), (140, 45324), (141, 45327), (144, 45336), (151, 45357), (176, 45468), (181, 45480), (186, 45498), (208, 45549), (211, 45558), (218, 45591),

Gene: Pharpay\_45 Start: 30189, Stop: 31037, Start Num: 52

Candidate Starts for Pharpay\_45:

(6, 29763), (10, 29793), (14, 29925), (Start: 52 @30189 has 61 MA's), (63, 30243), (70, 30279), (73, 30306), (83, 30351), (85, 30354), (94, 30399), (131, 30555), (140, 30591), (143, 30600), (144, 30603), (175, 30732), (181, 30747), (223, 30852), (235, 30894),

Gene: Phendrix\_167 Start: 88597, Stop: 87887, Start Num: 39

Candidate Starts for Phendrix\_167:

(Start: 39 @88597 has 13 MA's), (Start: 51 @88576 has 9 MA's), (64, 88516), (99, 88360), (109, 88327), (118, 88291), (130, 88264), (135, 88237), (139, 88225), (142, 88216), (150, 88192), (161, 88150), (172, 88093), (173, 88090), (179, 88069), (182, 88060), (208, 88009), (242, 87892),

Gene: Phomeo\_64 Start: 51694, Stop: 50873, Start Num: 40

Candidate Starts for Phomeo\_64:

(Start: 40 @51694 has 26 MA's), (63, 51622), (108, 51400), (142, 51259), (145, 51250), (159, 51199), (168, 51163), (181, 51109), (186, 51091), (197, 51076), (232, 50953),

Gene: Phrampa\_97 Start: 85968, Stop: 86774, Start Num: 39

Candidate Starts for Phrampa\_97:

(Start: 39 @85968 has 13 MA's), (69, 86073), (138, 86343), (156, 86406), (161, 86421), (185, 86517), (222, 86625), (231, 86652), (232, 86655), (257, 86751), (258, 86769),

Gene: Phreeze\_71 Start: 52138, Stop: 53217, Start Num: 48

Candidate Starts for Phreeze\_71:

(Start: 48 @52138 has 9 MA's), (53, 52144), (63, 52192), (85, 52300), (95, 52348), (102, 52378), (112, 52435), (114, 52444), (118, 52450), (144, 52552), (153, 52585), (157, 52600), (167, 52639), (174, 52678), (181, 52696), (186, 52714), (187, 52717), (191, 52726), (212, 52792), (217, 52816), (263, 53008), (270, 53155), (271, 53158), (274, 53197), (275, 53206),

Gene: PhunaPhoke\_45 Start: 30162, Stop: 31010, Start Num: 52

Candidate Starts for PhunaPhoke\_45:

(6, 29736), (10, 29766), (14, 29898), (Start: 52 @30162 has 61 MA's), (63, 30216), (70, 30252), (73, 30279), (83, 30324), (85, 30327), (94, 30372), (131, 30528), (140, 30564), (143, 30573), (144, 30576), (175, 30705), (181, 30720), (223, 30825), (235, 30867),

Gene: Pleakley\_74 Start: 51254, Stop: 50463, Start Num: 27

Candidate Starts for Pleakley\_74:

(Start: 27 @51254 has 11 MA's), (63, 51158), (112, 50924), (142, 50813), (145, 50804), (151, 50786), (153, 50774), (159, 50753), (181, 50663), (186, 50645), (197, 50630), (218, 50570),

Gene: Polyuki\_64 Start: 48412, Stop: 47561, Start Num: 47

Candidate Starts for Polyuki\_64:

(Start: 47 @48412 has 7 MA's), (63, 48352), (89, 48232), (93, 48220), (112, 48118), (115, 48109), (122, 48091), (126, 48079), (140, 48007), (181, 47851), (186, 47833), (189, 47827), (226, 47704), (238, 47668), (244, 47647),

Gene: PotatoChip\_54 Start: 45341, Stop: 44577, Start Num: 44

Candidate Starts for PotatoChip\_54:

(Start: 44 @45341 has 45 MA's), (94, 45122), (112, 45047), (168, 44840), (181, 44786), (211, 44741), (230, 44657),

Gene: Potty\_45 Start: 30167, Stop: 31015, Start Num: 52

Candidate Starts for Potty\_45:

(6, 29741), (10, 29771), (14, 29903), (Start: 52 @30167 has 61 MA's), (63, 30221), (70, 30257), (73, 30284), (83, 30329), (85, 30332), (94, 30377), (131, 30533), (140, 30569), (143, 30578), (144, 30581), (175, 30710), (181, 30725), (223, 30830), (235, 30872),

Gene: Poultruss\_44 Start: 30482, Stop: 31330, Start Num: 52

Candidate Starts for Poultruss\_44:

(1, 29921), (5, 30017), (6, 30056), (10, 30086), (13, 30182), (14, 30218), (Start: 52 @30482 has 61 MA's), (63, 30536), (70, 30572), (73, 30599), (83, 30644), (85, 30647), (94, 30692), (131, 30848), (140, 30884), (143, 30893), (144, 30896), (175, 31025), (181, 31040), (223, 31145), (235, 31187),

Gene: Prager\_59 Start: 44509, Stop: 45369, Start Num: 52

Candidate Starts for Prager\_59:

(25, 44437), (Start: 52 @44509 has 61 MA's), (61, 44554), (65, 44566), (69, 44584), (70, 44596), (73, 44620), (74, 44623), (109, 44776), (112, 44797), (114, 44806), (118, 44812), (140, 44902), (141, 44905), (144, 44914), (151, 44935), (176, 45046), (181, 45058), (186, 45076), (208, 45127), (211, 45136), (217, 45166), (218, 45169),

Gene: Predator\_71 Start: 51699, Stop: 52709, Start Num: 48

Candidate Starts for Predator\_71:

(Start: 48 @51699 has 9 MA's), (53, 51705), (63, 51753), (65, 51759), (85, 51861), (95, 51909), (112, 51996), (114, 52005), (118, 52011), (125, 52032), (140, 52101), (144, 52113), (152, 52140), (153, 52146), (157, 52161), (167, 52200), (174, 52239), (181, 52257), (186, 52275), (187, 52278), (210, 52350), (212, 52362), (268, 52683),

Gene: Puissant\_73 Start: 52254, Stop: 53387, Start Num: 48

Candidate Starts for Puissant\_73:

(Start: 48 @52254 has 9 MA's), (53, 52260), (63, 52308), (85, 52416), (95, 52464), (102, 52494), (112, 52551), (114, 52560), (118, 52566), (144, 52668), (153, 52701), (157, 52716), (167, 52755), (174, 52794), (181, 52812), (186, 52830), (187, 52833), (191, 52842), (212, 52908), (217, 52932), (267, 53289), (274, 53367),

Gene: Pumpnickel\_109 Start: 77313, Stop: 76510, Start Num: 35

Candidate Starts for Pumpnickel\_109:

(Start: 35 @77313 has 1 MA's), (Start: 51 @77283 has 9 MA's), (Start: 52 @77280 has 61 MA's), (66, 77217), (81, 77127), (88, 77103), (92, 77091), (94, 77073), (118, 76983), (130, 76956), (131, 76950), (138, 76920), (158, 76851), (161, 76842), (198, 76716), (226, 76608), (231, 76593), (234, 76584),

Gene: Pywacket\_64 Start: 46014, Stop: 47084, Start Num: 44

Candidate Starts for Pywacket\_64:

(Start: 44 @46014 has 45 MA's), (78, 46146), (89, 46194), (109, 46275), (111, 46287), (112, 46296), (114, 46305), (149, 46428), (154, 46449), (162, 46476), (181, 46557), (186, 46575), (197, 46596), (215, 46674), (237, 46758), (261, 46923), (272, 47055),

Gene: Racecar\_105 Start: 84483, Stop: 85292, Start Num: 39

Candidate Starts for Racecar\_105:

(Start: 39 @84483 has 13 MA's), (69, 84588), (138, 84858), (161, 84936), (221, 85137), (231, 85167), (232, 85170), (245, 85200), (257, 85269), (258, 85287),

Gene: Rachella\_45 Start: 30170, Stop: 31018, Start Num: 52

Candidate Starts for Rachella\_45:

(6, 29744), (10, 29774), (14, 29906), (Start: 52 @30170 has 61 MA's), (63, 30224), (70, 30260), (73, 30287), (83, 30332), (85, 30335), (94, 30380), (131, 30536), (140, 30572), (143, 30581), (144, 30584), (175, 30713), (181, 30728), (223, 30833), (235, 30875),

Gene: Ranch\_67 Start: 44074, Stop: 45165, Start Num: 44

Candidate Starts for Ranch\_67:

(Start: 44 @44074 has 45 MA's), (78, 44206), (89, 44254), (111, 44347), (112, 44356), (114, 44365), (149, 44488), (154, 44509), (162, 44536), (181, 44617), (186, 44635), (197, 44656), (215, 44734), (237, 44818), (261, 44983), (263, 44992), (272, 45136),

Gene: RazorC\_67 Start: 44218, Stop: 45288, Start Num: 44

Candidate Starts for RazorC\_67:

(Start: 44 @44218 has 45 MA's), (71, 44314), (78, 44350), (89, 44398), (111, 44491), (112, 44500), (114, 44509), (149, 44632), (154, 44653), (162, 44680), (181, 44761), (186, 44779), (197, 44800), (215, 44878), (237, 44962), (272, 45259),

Gene: RedRaider\_72 Start: 54080, Stop: 53301, Start Num: 27

Candidate Starts for RedRaider\_72:

(Start: 27 @54080 has 11 MA's), (63, 53996), (98, 53831), (142, 53648), (159, 53588), (168, 53552), (181, 53498), (186, 53480), (207, 53447), (210, 53438), (228, 53363), (232, 53351),

Gene: ReginaGlobina\_103 Start: 84193, Stop: 84942, Start Num: 64

Candidate Starts for ReginaGlobina\_103:

(Start: 39 @84109 has 13 MA's), (64, 84193), (67, 84202), (68, 84208), (92, 84313), (138, 84484), (161, 84562), (182, 84652), (204, 84694), (222, 84769), (229, 84790), (231, 84796),

Gene: Riduram\_67 Start: 43793, Stop: 44863, Start Num: 44

Candidate Starts for Riduram\_67:

(Start: 44 @43793 has 45 MA's), (71, 43889), (78, 43925), (89, 43973), (111, 44066), (112, 44075), (114, 44084), (149, 44207), (154, 44228), (162, 44255), (181, 44336), (186, 44354), (197, 44375), (215, 44453), (237, 44537), (272, 44834),

Gene: Rie18\_45 Start: 29667, Stop: 30512, Start Num: 52

Candidate Starts for Rie18\_45:

(8, 29262), (10, 29271), (Start: 52 @29667 has 61 MA's), (60, 29709), (63, 29721), (70, 29757), (73, 29784), (83, 29829), (85, 29832), (94, 29877), (131, 30033), (140, 30069), (143, 30078), (144, 30081), (175, 30210), (181, 30225), (223, 30330), (235, 30372),

Gene: RikSengupta\_49 Start: 31227, Stop: 32069, Start Num: 45

Candidate Starts for RikSengupta\_49:

(15, 30993), (Start: 45 @31227 has 12 MA's), (65, 31290), (80, 31374), (83, 31386), (85, 31389), (123, 31551), (131, 31587), (140, 31623), (158, 31686), (161, 31695), (175, 31764), (181, 31779), (235, 31926),

Gene: Riparian\_72 Start: 52432, Stop: 53262, Start Num: 38

Candidate Starts for Riparian\_72:

(Start: 38 @52432 has 9 MA's), (58, 52477), (64, 52507), (70, 52540), (73, 52564), (85, 52612), (90, 52633), (109, 52726), (117, 52756), (119, 52759), (125, 52771), (148, 52855), (155, 52885), (174, 52969), (176, 52975), (181, 52987), (186, 53005), (194, 53032), (196, 53035), (218, 53131), (223, 53152), (230, 53179),

Gene: Rockabye\_109 Start: 77741, Stop: 78529, Start Num: 50

Candidate Starts for Rockabye\_109:

(Start: 39 @77720 has 13 MA's), (50, 77741), (68, 77819), (69, 77825), (109, 77996), (138, 78095), (161, 78173), (176, 78245), (182, 78263), (222, 78380), (257, 78506),

Gene: Rooney\_64 Start: 46156, Stop: 45371, Start Num: 51

Candidate Starts for Rooney\_64:

(Start: 51 @46156 has 9 MA's), (63, 46102), (66, 46093), (70, 46066), (73, 46042), (85, 45994), (110, 45889), (133, 45790), (134, 45784), (146, 45745), (152, 45724), (170, 45652), (181, 45607), (183, 45601), (195, 45583), (209, 45556), (227, 45484),

Gene: Rope\_70 Start: 52588, Stop: 53418, Start Num: 38

Candidate Starts for Rope\_70:

(Start: 38 @52588 has 9 MA's), (58, 52633), (64, 52663), (70, 52696), (73, 52720), (85, 52768), (90, 52789), (109, 52882), (117, 52912), (119, 52915), (125, 52927), (148, 53011), (155, 53041), (174, 53125), (176, 53131), (181, 53143), (186, 53161), (194, 53188), (196, 53191), (218, 53287), (223, 53308), (230, 53335),

Gene: Rota\_64 Start: 45088, Stop: 46158, Start Num: 44

Candidate Starts for Rota\_64:

(Start: 44 @45088 has 45 MA's), (78, 45220), (89, 45268), (111, 45361), (112, 45370), (114, 45379), (149, 45502), (154, 45523), (162, 45550), (181, 45631), (186, 45649), (197, 45670), (215, 45748), (237, 45832), (252, 45910), (261, 45997), (272, 46129),

Gene: Rukungu\_69 Start: 46093, Stop: 47184, Start Num: 44

Candidate Starts for Rukungu\_69:

(Start: 44 @46093 has 45 MA's), (78, 46225), (89, 46273), (109, 46354), (111, 46366), (112, 46375), (114, 46384), (149, 46507), (154, 46528), (162, 46555), (181, 46636), (186, 46654), (197, 46675), (215, 46753), (237, 46837), (261, 47002), (263, 47011), (272, 47155),

Gene: Rumi\_68 Start: 43761, Stop: 44831, Start Num: 44

Candidate Starts for Rumi\_68:

(Start: 44 @43761 has 45 MA's), (71, 43857), (78, 43893), (89, 43941), (111, 44034), (112, 44043), (114, 44052), (149, 44175), (154, 44196), (162, 44223), (181, 44304), (186, 44322), (197, 44343), (215, 44421), (237, 44505), (272, 44802),

Gene: SJReid\_108 Start: 76738, Stop: 77565, Start Num: 39

Candidate Starts for SJReid\_108:

(Start: 39 @76738 has 13 MA's), (50, 76759), (68, 76837), (69, 76843), (138, 77113), (161, 77191), (176, 77263), (182, 77281), (229, 77419), (257, 77542),

Gene: Sadboi\_68 Start: 45890, Stop: 46960, Start Num: 44

Candidate Starts for Sadboi\_68:

(Start: 44 @45890 has 45 MA's), (78, 46022), (89, 46070), (111, 46163), (112, 46172), (114, 46181), (149, 46304), (154, 46325), (162, 46352), (181, 46433), (186, 46451), (197, 46472), (215, 46550), (237, 46634), (261, 46799), (272, 46931),

Gene: Sampudon\_67 Start: 46242, Stop: 47312, Start Num: 44

Candidate Starts for Sampudon\_67:

(Start: 44 @46242 has 45 MA's), (78, 46374), (89, 46422), (109, 46503), (111, 46515), (112, 46524), (114, 46533), (149, 46656), (154, 46677), (162, 46704), (181, 46785), (186, 46803), (197, 46824), (215, 46902), (237, 46986), (252, 47064), (261, 47151), (272, 47283),

Gene: SassyC\_69 Start: 47080, Stop: 46298, Start Num: 51

Candidate Starts for SassyC\_69:

(21, 47188), (28, 47116), (Start: 51 @47080 has 9 MA's), (58, 47053), (63, 47026), (66, 47017), (70, 46990), (73, 46966), (85, 46918), (133, 46714), (134, 46708), (146, 46669), (152, 46648), (159, 46621), (170, 46576), (181, 46531), (183, 46525), (195, 46507), (213, 46471),

Gene: Scuba\_75 Start: 51339, Stop: 50548, Start Num: 27

Candidate Starts for Scuba\_75:

(Start: 27 @51339 has 11 MA's), (63, 51243), (112, 51009), (142, 50898), (145, 50889), (153, 50859), (159, 50838), (181, 50748), (186, 50730), (197, 50715), (218, 50655),

Gene: Send513\_70 Start: 52966, Stop: 53796, Start Num: 38

Candidate Starts for Send513\_70:

(Start: 38 @52966 has 9 MA's), (58, 53011), (64, 53041), (70, 53074), (73, 53098), (85, 53146), (90, 53167), (109, 53260), (117, 53290), (119, 53293), (148, 53389), (155, 53419), (174, 53503), (176, 53509), (181, 53521), (186, 53539), (194, 53566), (196, 53569), (218, 53665), (223, 53686), (230, 53713),

Gene: ShakeNBake\_64 Start: 46028, Stop: 45246, Start Num: 51

Candidate Starts for ShakeNBake\_64:

(Start: 51 @46028 has 9 MA's), (63, 45974), (66, 45965), (70, 45938), (73, 45914), (85, 45866), (110, 45761), (133, 45662), (134, 45656), (146, 45617), (152, 45596), (170, 45524), (181, 45479), (183, 45473), (195, 45455), (213, 45419), (227, 45356),

Gene: Sienna\_56 Start: 41882, Stop: 42811, Start Num: 42

Candidate Starts for Sienna\_56:

(Start: 42 @41882 has 9 MA's), (64, 41939), (70, 41972), (104, 42122), (106, 42131), (109, 42155), (112, 42176), (118, 42191), (122, 42203), (126, 42215), (133, 42254), (136, 42269), (147, 42302), (173, 42413), (174, 42419), (181, 42437), (190, 42461), (193, 42467), (202, 42497), (208, 42521), (230, 42614), (260, 42782),

Gene: SilentWarrior\_45 Start: 29382, Stop: 30230, Start Num: 52

Candidate Starts for SilentWarrior\_45:

(1, 28821), (5, 28917), (6, 28956), (10, 28986), (14, 29118), (Start: 52 @29382 has 61 MA's), (63, 29436), (70, 29472), (73, 29499), (83, 29544), (85, 29547), (94, 29592), (131, 29748), (140, 29784), (143, 29793), (144, 29796), (175, 29925), (181, 29940), (223, 30045), (235, 30087),

Gene: SirHarley\_61 Start: 44932, Stop: 45792, Start Num: 52

Candidate Starts for SirHarley\_61:

(25, 44860), (Start: 52 @44932 has 61 MA's), (61, 44977), (65, 44989), (69, 45007), (70, 45019), (73, 45043), (74, 45046), (109, 45199), (112, 45220), (114, 45229), (118, 45235), (140, 45325), (141, 45328), (144, 45337), (151, 45358), (176, 45469), (181, 45481), (186, 45499), (208, 45550), (211, 45559), (217, 45589), (218, 45592),

Gene: Sixama\_165 Start: 92948, Stop: 92217, Start Num: 37

Candidate Starts for Sixama\_165:

(Start: 37 @92948 has 5 MA's), (Start: 52 @92921 has 61 MA's), (67, 92855), (76, 92798), (81, 92780), (89, 92753), (94, 92726), (99, 92705), (108, 92675), (139, 92570), (145, 92552), (148, 92543), (157, 92507), (161, 92495), (172, 92435), (173, 92432), (182, 92402), (185, 92396), (195, 92384), (209, 92345),

Gene: Skysand\_67 Start: 52239, Stop: 51460, Start Num: 27

Candidate Starts for Skysand\_67:

(Start: 27 @52239 has 11 MA's), (63, 52155), (77, 52080), (142, 51807), (159, 51747), (168, 51711), (181, 51657), (186, 51639), (207, 51606), (210, 51597), (228, 51522), (232, 51510),

Gene: Snakehole\_45 Start: 29347, Stop: 30192, Start Num: 52

Candidate Starts for Snakehole\_45:

(6, 28921), (7, 28927), (10, 28951), (14, 29083), (Start: 52 @29347 has 61 MA's), (63, 29401), (70, 29437), (73, 29464), (83, 29509), (85, 29512), (94, 29557), (131, 29713), (140, 29749), (143, 29758), (144, 29761), (175, 29890), (181, 29905), (223, 30010), (235, 30052),

Gene: Sparcetus\_49 Start: 31104, Stop: 31946, Start Num: 45

Candidate Starts for Sparcetus\_49:

(Start: 45 @31104 has 12 MA's), (65, 31167), (80, 31251), (83, 31263), (85, 31266), (123, 31428), (131, 31464), (140, 31500), (158, 31563), (161, 31572), (175, 31641), (181, 31656), (235, 31803),

Gene: StarStruck\_66 Start: 51894, Stop: 51040, Start Num: 45

Candidate Starts for StarStruck\_66:

(Start: 45 @51894 has 12 MA's), (108, 51615), (122, 51564), (142, 51474), (154, 51432), (159, 51414), (168, 51378), (173, 51348), (181, 51324), (186, 51306),

Gene: Stewart25555\_95 Start: 81038, Stop: 81781, Start Num: 64

Candidate Starts for Stewart25555\_95:

(Start: 39 @80954 has 13 MA's), (Start: 52 @80981 has 61 MA's), (64, 81038), (67, 81047), (68, 81053), (110, 81233), (138, 81329), (161, 81407), (182, 81497), (206, 81545), (222, 81614), (231,

81641), (257, 81758),

Gene: Stickynote\_54 Start: 45345, Stop: 44581, Start Num: 44

Candidate Starts for Stickynote\_54:

(Start: 44 @45345 has 45 MA's), (94, 45126), (168, 44844), (181, 44790), (211, 44745), (230, 44661),

Gene: Stormer\_67 Start: 43765, Stop: 44835, Start Num: 44

Candidate Starts for Stormer\_67:

(Start: 44 @43765 has 45 MA's), (71, 43861), (78, 43897), (89, 43945), (111, 44038), (112, 44047), (114, 44056), (149, 44179), (154, 44200), (162, 44227), (181, 44308), (186, 44326), (197, 44347), (215, 44425), (237, 44509), (272, 44806),

Gene: Sukkupi\_66 Start: 50275, Stop: 49478, Start Num: 40

Candidate Starts for Sukkupi\_66:

(19, 50374), (26, 50302), (Start: 40 @50275 has 26 MA's), (63, 50200), (100, 50026), (132, 49894), (139, 49864), (142, 49855), (145, 49846), (152, 49819), (159, 49792), (170, 49747), (177, 49714), (181, 49702), (186, 49684), (218, 49603), (240, 49525),

Gene: SuperSonics\_88 Start: 54521, Stop: 55606, Start Num: 45

Candidate Starts for SuperSonics\_88:

(Start: 45 @54521 has 12 MA's), (64, 54578), (65, 54581), (70, 54611), (80, 54668), (85, 54683), (112, 54812), (121, 54836), (132, 54890), (137, 54914), (173, 55058), (174, 55064), (176, 55070), (180, 55079), (181, 55082), (186, 55100), (198, 55127), (212, 55187), (223, 55235), (237, 55283), (243, 55301), (251, 55361), (256, 55382), (265, 55517), (266, 55532),

Gene: SuperSulley\_67 Start: 52253, Stop: 51390, Start Num: 40

Candidate Starts for SuperSulley\_67:

(22, 52331), (Start: 40 @52253 has 26 MA's), (80, 52091), (108, 51965), (142, 51824), (152, 51791), (159, 51764), (161, 51758), (173, 51698), (181, 51674), (186, 51656), (212, 51602), (219, 51572), (230, 51527),

Gene: SuperheroCarly\_60 Start: 44606, Stop: 45466, Start Num: 52

Candidate Starts for SuperheroCarly\_60:

(25, 44534), (Start: 52 @44606 has 61 MA's), (61, 44651), (65, 44663), (69, 44681), (70, 44693), (73, 44717), (74, 44720), (109, 44873), (112, 44894), (114, 44903), (118, 44909), (140, 44999), (141, 45002), (144, 45011), (151, 45032), (176, 45143), (181, 45155), (186, 45173), (208, 45224), (211, 45233), (217, 45263), (218, 45266),

Gene: Suzy\_56 Start: 43075, Stop: 44001, Start Num: 42

Candidate Starts for Suzy\_56:

(Start: 42 @43075 has 9 MA's), (64, 43132), (70, 43165), (104, 43315), (106, 43324), (112, 43369), (118, 43384), (122, 43396), (126, 43408), (133, 43447), (136, 43462), (147, 43495), (173, 43606), (174, 43612), (181, 43630), (190, 43654), (193, 43660), (199, 43684), (202, 43690), (208, 43714), (224, 43783), (230, 43807), (260, 43972),

Gene: Talia1610\_104 Start: 83848, Stop: 84657, Start Num: 39

Candidate Starts for Talia1610\_104:

(Start: 39 @83848 has 13 MA's), (69, 83953), (138, 84223), (161, 84301), (221, 84502), (231, 84532), (232, 84535), (245, 84565), (257, 84634), (258, 84652),

Gene: Tedro\_45 Start: 29601, Stop: 30446, Start Num: 52

Candidate Starts for Tedro\_45:

(6, 29175), (10, 29205), (13, 29301), (14, 29337), (Start: 52 @29601 has 61 MA's), (63, 29655), (70, 29691), (73, 29718), (83, 29763), (85, 29766), (94, 29811), (131, 29967), (140, 30003), (143, 30012), (144, 30015), (175, 30144), (181, 30159), (223, 30264), (235, 30306),

Gene: Terapin\_57 Start: 41806, Stop: 42735, Start Num: 42

Candidate Starts for Terapin\_57:

(Start: 42 @41806 has 9 MA's), (64, 41863), (70, 41896), (104, 42046), (106, 42055), (109, 42079), (112, 42100), (118, 42115), (122, 42127), (126, 42139), (133, 42178), (136, 42193), (147, 42226), (173, 42337), (174, 42343), (181, 42361), (190, 42385), (193, 42391), (202, 42421), (208, 42445), (230, 42538), (260, 42706),

Gene: Thoth\_59 Start: 44488, Stop: 45348, Start Num: 52

Candidate Starts for Thoth\_59:

(25, 44416), (Start: 52 @44488 has 61 MA's), (61, 44533), (65, 44545), (69, 44563), (70, 44575), (73, 44599), (74, 44602), (109, 44755), (112, 44776), (114, 44785), (118, 44791), (140, 44881), (141, 44884), (144, 44893), (151, 44914), (176, 45025), (181, 45037), (186, 45055), (208, 45106), (211, 45115), (217, 45145), (218, 45148),

Gene: Thumb\_73 Start: 52573, Stop: 53652, Start Num: 48

Candidate Starts for Thumb\_73:

(Start: 48 @52573 has 9 MA's), (53, 52579), (63, 52627), (85, 52735), (95, 52783), (102, 52813), (112, 52870), (114, 52879), (118, 52885), (144, 52987), (153, 53020), (157, 53035), (167, 53074), (174, 53113), (181, 53131), (186, 53149), (187, 53152), (191, 53161), (212, 53227), (217, 53251), (263, 53443), (270, 53590), (271, 53593), (274, 53632), (275, 53641),

Gene: Tillicus\_62 Start: 44587, Stop: 45672, Start Num: 44

Candidate Starts for Tillicus\_62:

(Start: 44 @44587 has 45 MA's), (69, 44668), (70, 44680), (73, 44704), (78, 44719), (89, 44767), (111, 44860), (112, 44869), (114, 44878), (149, 45001), (154, 45022), (162, 45049), (181, 45130), (186, 45148), (197, 45169), (201, 45190), (215, 45247), (237, 45331),

Gene: TinyMiny\_49 Start: 31125, Stop: 31967, Start Num: 45

Candidate Starts for TinyMiny\_49:

(15, 30891), (Start: 45 @31125 has 12 MA's), (65, 31188), (80, 31272), (83, 31284), (85, 31287), (123, 31449), (131, 31485), (140, 31521), (158, 31584), (161, 31593), (175, 31662), (181, 31677), (235, 31824),

Gene: Tongui\_45 Start: 29721, Stop: 30566, Start Num: 52

Candidate Starts for Tongui\_45:

(8, 29316), (10, 29325), (12, 29382), (Start: 52 @29721 has 61 MA's), (63, 29775), (70, 29811), (73, 29838), (83, 29883), (85, 29886), (94, 29931), (131, 30087), (140, 30123), (143, 30132), (144, 30135), (175, 30264), (181, 30279), (195, 30303), (223, 30384), (235, 30426),

Gene: Tracker\_65 Start: 50870, Stop: 50052, Start Num: 40

Candidate Starts for Tracker\_65:

(26, 50897), (Start: 40 @50870 has 26 MA's), (63, 50798), (108, 50576), (142, 50435), (145, 50426), (159, 50375), (168, 50339), (181, 50285), (186, 50267), (197, 50252),

Gene: Troll4\_59 Start: 44619, Stop: 45479, Start Num: 52

Candidate Starts for Troll4\_59:

(25, 44547), (Start: 52 @44619 has 61 MA's), (61, 44664), (65, 44676), (69, 44694), (70, 44706), (73, 44730), (74, 44733), (109, 44886), (112, 44907), (114, 44916), (118, 44922), (140, 45012), (141, 45015), (144, 45024), (151, 45045), (176, 45156), (181, 45168), (186, 45186), (208, 45237), (211,

45246), (217, 45276), (218, 45279),

Gene: Turuncu\_68 Start: 51816, Stop: 51037, Start Num: 27

Candidate Starts for Turuncu\_68:

(Start: 27 @51816 has 11 MA's), (63, 51729), (139, 51390), (142, 51381), (152, 51348), (159, 51321), (168, 51291), (181, 51237), (183, 51231), (186, 51219), (189, 51213), (210, 51177), (219, 51141),

Gene: Virizion\_69 Start: 46376, Stop: 45591, Start Num: 51

Candidate Starts for Virizion\_69:

(Start: 51 @46376 has 9 MA's), (63, 46322), (66, 46313), (70, 46286), (73, 46262), (85, 46214), (133, 46010), (134, 46004), (146, 45965), (152, 45944), (170, 45872), (181, 45827), (183, 45821), (195, 45803), (209, 45776), (227, 45704),

Gene: Visconti\_60 Start: 44499, Stop: 45359, Start Num: 52

Candidate Starts for Visconti\_60:

(25, 44427), (Start: 52 @44499 has 61 MA's), (61, 44544), (65, 44556), (69, 44574), (70, 44586), (73, 44610), (74, 44613), (109, 44766), (112, 44787), (114, 44796), (118, 44802), (140, 44892), (141, 44895), (144, 44904), (151, 44925), (176, 45036), (181, 45048), (186, 45066), (208, 45117), (211, 45126), (217, 45156), (218, 45159),

Gene: WaddleDee\_91 Start: 79411, Stop: 80229, Start Num: 39

Candidate Starts for WaddleDee\_91:

(Start: 39 @79411 has 13 MA's), (Start: 52 @79438 has 61 MA's), (64, 79495), (67, 79504), (68, 79510), (138, 79786), (156, 79849), (161, 79864), (182, 79954), (206, 79999), (222, 80068), (231, 80095), (255, 80191), (257, 80206),

Gene: WaldoWhy\_61 Start: 44552, Stop: 45412, Start Num: 52

Candidate Starts for WaldoWhy\_61:

(25, 44480), (Start: 52 @44552 has 61 MA's), (61, 44597), (65, 44609), (69, 44627), (70, 44639), (73, 44663), (74, 44666), (109, 44819), (112, 44840), (114, 44849), (118, 44855), (140, 44945), (141, 44948), (144, 44957), (151, 44978), (176, 45089), (181, 45101), (186, 45119), (208, 45170), (211, 45179), (217, 45209), (218, 45212),

Gene: Weiss13\_70 Start: 52669, Stop: 53499, Start Num: 38

Candidate Starts for Weiss13\_70:

(Start: 38 @52669 has 9 MA's), (58, 52714), (64, 52744), (70, 52777), (73, 52801), (85, 52849), (90, 52870), (109, 52963), (117, 52993), (119, 52996), (125, 53008), (148, 53092), (155, 53122), (174, 53206), (176, 53212), (181, 53224), (186, 53242), (194, 53269), (196, 53272), (218, 53368), (223, 53389), (230, 53416),

Gene: Wentworth\_64 Start: 46130, Stop: 45360, Start Num: 51

Candidate Starts for Wentworth\_64:

(Start: 51 @46130 has 9 MA's), (59, 46088), (63, 46076), (64, 46073), (70, 46040), (85, 45968), (108, 45869), (133, 45764), (134, 45758), (146, 45719), (152, 45698), (166, 45641), (181, 45581), (183, 45575), (209, 45530), (213, 45521),

Gene: Wheezy\_65 Start: 51084, Stop: 50263, Start Num: 40

Candidate Starts for Wheezy\_65:

(26, 51111), (Start: 40 @51084 has 26 MA's), (63, 51012), (108, 50790), (142, 50649), (145, 50640), (159, 50589), (168, 50553), (181, 50499), (186, 50481), (197, 50466),

Gene: WhoseManz\_65 Start: 48102, Stop: 47305, Start Num: 40

Candidate Starts for WhoseManz\_65:

(Start: 40 @48102 has 26 MA's), (63, 48027), (132, 47721), (139, 47691), (142, 47682), (145, 47673), (152, 47646), (159, 47619), (170, 47574), (177, 47541), (181, 47529), (186, 47511), (218, 47430), (240, 47352),

Gene: Wilkos\_66 Start: 46285, Stop: 45515, Start Num: 51

Candidate Starts for Wilkos\_66:

(Start: 51 @46285 has 9 MA's), (58, 46258), (59, 46243), (63, 46231), (64, 46228), (70, 46195), (73, 46171), (74, 46168), (80, 46138), (108, 46024), (133, 45919), (134, 45913), (146, 45874), (152, 45853), (166, 45796), (181, 45736), (183, 45730), (213, 45676),

Gene: Wojtek\_63 Start: 44323, Stop: 45414, Start Num: 44

Candidate Starts for Wojtek\_63:

(Start: 44 @44323 has 45 MA's), (69, 44404), (70, 44416), (78, 44455), (89, 44503), (111, 44596), (112, 44605), (114, 44614), (149, 44737), (154, 44758), (162, 44785), (181, 44866), (186, 44884), (197, 44905), (215, 44983), (237, 45067), (252, 45145), (261, 45232),

Gene: Wollypog\_48 Start: 34784, Stop: 35608, Start Num: 52

Candidate Starts for Wollypog\_48:

(Start: 52 @34784 has 61 MA's), (62, 34832), (63, 34838), (64, 34841), (73, 34898), (116, 35081), (118, 35084), (139, 35174), (148, 35201), (153, 35222), (178, 35324), (181, 35333),

Gene: Xenia2\_66 Start: 44090, Stop: 45202, Start Num: 44

Candidate Starts for Xenia2\_66:

(Start: 44 @44090 has 45 MA's), (70, 44186), (78, 44225), (89, 44273), (109, 44354), (111, 44366), (112, 44375), (114, 44384), (154, 44528), (181, 44636), (186, 44654), (197, 44675), (202, 44699), (203, 44702), (215, 44753), (250, 44894), (272, 45170),

Gene: Yara\_60 Start: 44990, Stop: 44223, Start Num: 51

Candidate Starts for Yara\_60:

(Start: 51 @44990 has 9 MA's), (58, 44963), (63, 44936), (66, 44927), (70, 44900), (146, 44579), (147, 44576), (152, 44558), (159, 44531), (183, 44435), (235, 44297),

Gene: Yelo\_69 Start: 53048, Stop: 53878, Start Num: 38

Candidate Starts for Yelo\_69:

(Start: 38 @53048 has 9 MA's), (58, 53093), (64, 53123), (70, 53156), (73, 53180), (85, 53228), (90, 53249), (109, 53342), (117, 53372), (119, 53375), (125, 53387), (148, 53471), (155, 53501), (174, 53585), (176, 53591), (181, 53603), (186, 53621), (194, 53648), (196, 53651), (218, 53747), (223, 53768), (230, 53795),

Gene: Yikes\_69 Start: 46336, Stop: 47406, Start Num: 44

Candidate Starts for Yikes\_69:

(Start: 44 @46336 has 45 MA's), (78, 46468), (89, 46516), (111, 46609), (112, 46618), (114, 46627), (149, 46750), (154, 46771), (162, 46798), (181, 46879), (186, 46897), (197, 46918), (215, 46996), (237, 47080), (261, 47245), (272, 47377),

Gene: Yndexa\_66 Start: 50275, Stop: 49478, Start Num: 40

Candidate Starts for Yndexa\_66:

(19, 50374), (26, 50302), (Start: 40 @50275 has 26 MA's), (63, 50200), (100, 50026), (132, 49894), (139, 49864), (142, 49855), (145, 49846), (152, 49819), (159, 49792), (170, 49747), (177, 49714), (181, 49702), (186, 49684), (218, 49603), (240, 49525),

Gene: Zany\_65 Start: 45737, Stop: 46807, Start Num: 44

Candidate Starts for Zany\_65:

(Start: 44 @45737 has 45 MA's), (78, 45869), (89, 45917), (111, 46010), (112, 46019), (114, 46028), (149, 46151), (154, 46172), (162, 46199), (181, 46280), (186, 46298), (197, 46319), (215, 46397), (237, 46481), (261, 46646), (272, 46778),

Gene: Zenon\_72 Start: 52992, Stop: 53822, Start Num: 38

Candidate Starts for Zenon\_72:

(Start: 38 @52992 has 9 MA's), (58, 53037), (64, 53067), (70, 53100), (73, 53124), (85, 53172), (90, 53193), (109, 53286), (117, 53316), (119, 53319), (148, 53415), (155, 53445), (174, 53529), (176, 53535), (181, 53547), (186, 53565), (194, 53592), (196, 53595), (218, 53691), (223, 53712), (230, 53739),

Gene: Zion\_54 Start: 45339, Stop: 44575, Start Num: 44

Candidate Starts for Zion\_54:

(Start: 44 @45339 has 45 MA's), (94, 45120), (112, 45045), (168, 44838), (181, 44784), (211, 44739), (230, 44655),

Gene: Zooman\_96 Start: 73343, Stop: 72582, Start Num: 36

Candidate Starts for Zooman\_96:

(Start: 36 @73343 has 4 MA's), (89, 73151), (90, 73148), (131, 73001), (138, 72971), (157, 72905), (161, 72893), (172, 72833), (184, 72797), (208, 72740), (217, 72698), (231, 72644),