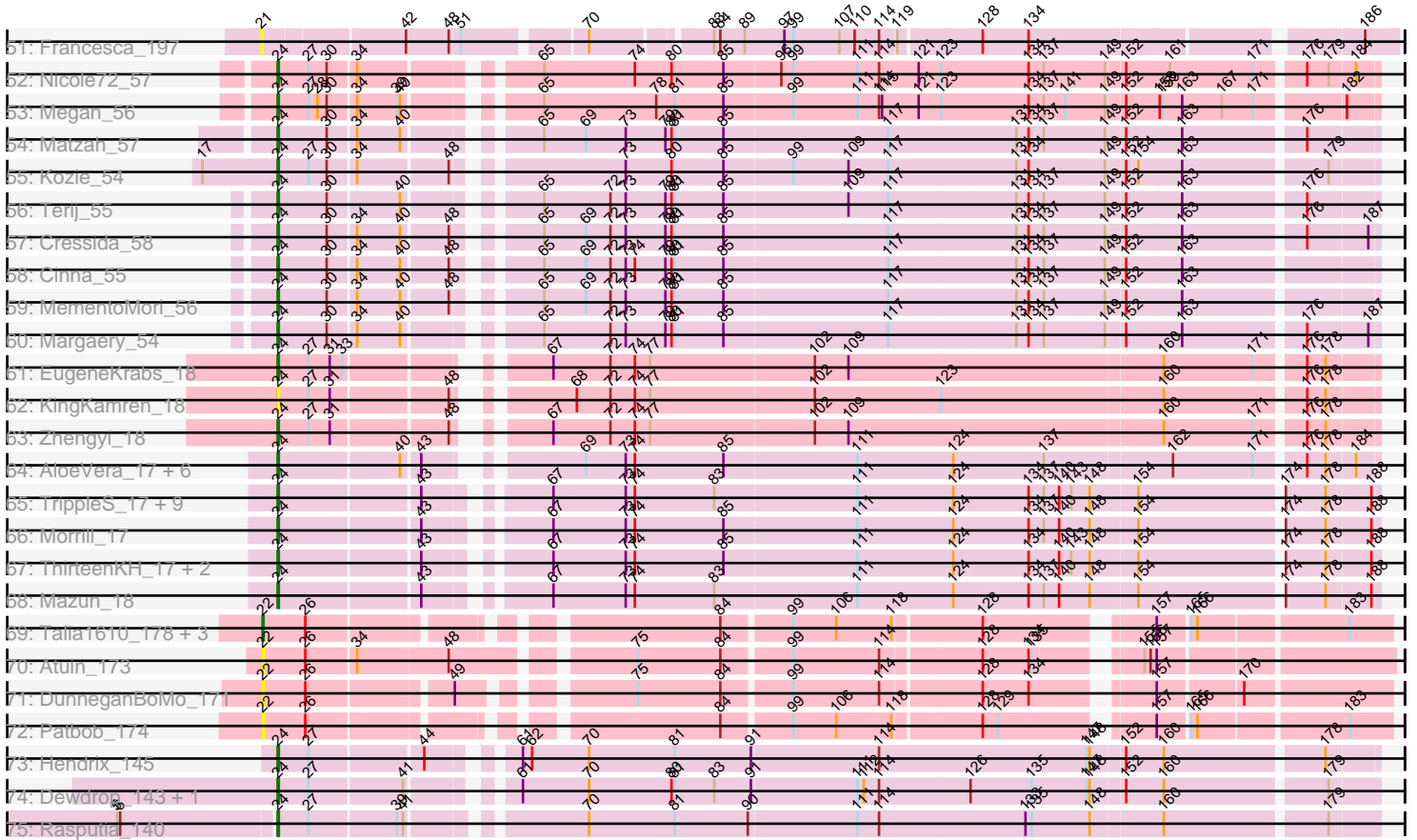




Pham 160045



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 160045 Report

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

Pham number 160045 has 209 members, 45 are drafts.

Phages represented in each track:

- Track 1 : Teutsch\_2, Samisti12\_253, Sushi23\_253, Sushi23\_2, Tribute\_248, Larnav\_4, Larnav\_263, Teutsch\_249, Tribute\_2, Samisti12\_2
- Track 2 : Navo\_252, Navo\_2
- Track 3 : Pepperwood\_252, Pepperwood\_3
- Track 4 : Jay2Jay\_5, Jay2Jay\_260, Warpy\_257, Warpy\_5
- Track 5 : Braelyn\_3, Bartholomune\_3, Paradiddles\_3, Bartholomune\_253, NootNoot\_3, Squillium\_3, Braelyn\_248, Paradiddles\_244, NootNoot\_248, PinkiePie\_3, Liandry\_3, Liandry\_252, PinkiePie\_253, Squillium\_255
- Track 6 : Cursive\_256, Cursive\_2
- Track 7 : EGole\_2, EGole\_256
- Track 8 : BlueOtter\_2, HangryHippo\_2, Watermoore\_2, Watermoore\_249, Leo04\_253, HangryHippo\_254, Cross\_250, Cross\_2, Leo04\_2, BlueOtter\_254
- Track 9 : Persimmon\_253, Persimmon\_2, WhereRU\_259, WhereRU\_3
- Track 10 : Mildred21\_3, Mildred21\_266
- Track 11 : Bmoc\_2, Bmoc\_258
- Track 12 : Evy\_2, Evy\_240, Targaryen\_2, Targaryen\_253
- Track 13 : Anedea\_3, Anedea\_265
- Track 14 : Peebs\_2, Peebs\_249
- Track 15 : MulchMansion\_258, LilMartin\_254, MulchMansion\_2, LilMartin\_2
- Track 16 : Lululemon\_252, Lululemon\_2, PacManQ\_253, PacManQ\_2
- Track 17 : Angela\_2, Angela\_259
- Track 18 : Battuta\_260, Karimac\_3, Starbow\_3, Battuta\_3, SaltySpitoon\_3, KentuckyRacer\_277, Starbow\_260, SaltySpitoon\_263, KentuckyRacer\_3, CeilingFan\_276, CeilingFan\_2, Karimac\_261, IchabodCrane\_255, IchabodCrane\_2
- Track 19 : MindFlayer\_2, JimJam\_271, Jollison\_267, Spilled\_2, PumpkinSpice\_3, PumpkinSpice\_267, MindFlayer\_254, Quarant19\_264, Bordeaux\_3, Spelly\_269, Bordeaux\_260, Amabiko\_267, Spilled\_270, Amabiko\_3, Jollison\_3, Spelly\_3, JimJam\_3, Quarant19\_3
- Track 20 : Gibbi\_2, Gibbi\_273
- Track 21 : StarPlatinum\_2, StarPlatinum\_272
- Track 22 : Sollertia\_260, BoomerJR\_259, Yaboi\_4, Stanimal\_259, Genie2\_259, Genie2\_4, Yaboi\_265, Sollertia\_4, Stanimal\_4, BoomerJR\_4
- Track 23 : Wofford\_3, Wofford\_261
- Track 24 : Elmer\_3, Elmer\_279
- Track 25 : Mugiwara\_274, Mugiwara\_2
- Track 26 : Enygma\_270, Enygma\_2
- Track 27 : Wipeout\_255, Wipeout\_2

- Track 28 : TomSawyer\_2, TomSawyer\_267
- Track 29 : Tomas\_3, Tomas\_258
- Track 30 : LukeCage\_2, LukeCage\_265
- Track 31 : Belfort\_218, Karp\_214, Stigma\_217, SparkleGoddess\_218, Comrade\_215
- Track 32 : Limpid\_212, Annadreamy\_205
- Track 33 : Beuffert\_213
- Track 34 : Moab\_220
- Track 35 : Gilson\_218, Emma1919\_221, Jada\_220
- Track 36 : Phredrick\_223
- Track 37 : Blueeyedbeauty\_214
- Track 38 : TunaTartare\_218, Sham\_210
- Track 39 : Patelgo\_221
- Track 40 : Kenrey\_224
- Track 41 : Francob\_223
- Track 42 : Faust\_215, SeresaTree\_219
- Track 43 : MeganTheeKilla\_223
- Track 44 : Forrest\_221
- Track 45 : Weasels2\_189
- Track 46 : Grayson\_185
- Track 47 : Peregrin\_181
- Track 48 : Trina\_210
- Track 49 : NiceHouse\_208
- Track 50 : Dorin\_194
- Track 51 : Francesca\_197
- Track 52 : Nicole72\_57
- Track 53 : Megan\_56
- Track 54 : Matzah\_57
- Track 55 : Kozie\_54
- Track 56 : Terij\_55
- Track 57 : Cressida\_58
- Track 58 : Cinna\_55
- Track 59 : MementoMori\_56
- Track 60 : Margaery\_54
- Track 61 : EugeneKrabs\_18
- Track 62 : KingKamren\_18
- Track 63 : Zhengyi\_18
- Track 64 : AloeVera\_17, Ashton\_17, Truong\_17, JordanFarm\_17, Barroma\_17, Waterlily\_17, Akoni\_17
- Track 65 : TrippleS\_17, Astartes\_18, Pharky\_18, Moleficent\_18, RicoCaldo\_18, Fullmetal\_18, StagePhright\_18, Phedro\_18, Phracted\_18, PhriedRice\_18
- Track 66 : Morrill\_17
- Track 67 : ThirteenKH\_17, Yafa\_17, Atraxi\_17
- Track 68 : Mazun\_18
- Track 69 : Talia1610\_178, Racecar\_176, Mimi\_181, Bloom\_179
- Track 70 : Atuin\_173
- Track 71 : DunneganBoMo\_171
- Track 72 : Patbob\_174
- Track 73 : Hendrix\_145
- Track 74 : Dewdrop\_143, Leaf\_143
- Track 75 : Rasputia\_140

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

The start number called the most often in the published annotations is 23, it was called in 85 of the 164 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Anedea\_265, Anedea\_3, Angela\_2, Angela\_259, Annadreamy\_205, Bartholomune\_253, Bartholomune\_3, Battuta\_260, Battuta\_3, Beuffert\_213, BlueOtter\_2, BlueOtter\_254, Blueeyedbeauty\_214, Bmoc\_2, Bmoc\_258, BoomerJR\_259, BoomerJR\_4, Braelyn\_248, Braelyn\_3, CeilingFan\_2, CeilingFan\_276, Cross\_2, Cross\_250, Cursive\_2, Cursive\_256, Elmer\_279, Elmer\_3, Enygma\_2, Enygma\_270, Evy\_2, Evy\_240, Genie2\_259, Genie2\_4, Gibbi\_2, Gibbi\_273, HangryHippo\_2, HangryHippo\_254, IchabodCrane\_2, IchabodCrane\_255, Karimac\_261, Karimac\_3, KentuckyRacer\_277, KentuckyRacer\_3, Larnav\_263, Larnav\_4, Leo04\_2, Leo04\_253, Liandry\_252, Liandry\_3, LilMartin\_2, LilMartin\_254, Limpid\_212, LukeCage\_2, LukeCage\_265, Lululemon\_2, Lululemon\_252, Mildred21\_266, Mildred21\_3, MulchMansion\_2, MulchMansion\_258, Navo\_2, Navo\_252, NiceHouse\_208, NootNoot\_248, NootNoot\_3, PacManQ\_2, PacManQ\_253, Paradiddles\_244, Paradiddles\_3, Pepperwood\_252, Pepperwood\_3, Persimmon\_2, Persimmon\_253, PinkiePie\_253, PinkiePie\_3, SaltySpittoon\_263, SaltySpittoon\_3, Samisti12\_2, Samisti12\_253, Sollertia\_260, Sollertia\_4, Squillium\_255, Squillium\_3, Stanimal\_259, Stanimal\_4, StarPlatinum\_2, StarPlatinum\_272, Starbow\_260, Starbow\_3, Sushi23\_2, Sushi23\_253, Targaryen\_2, Targaryen\_253, Teutsch\_2, Teutsch\_249, TomSawyer\_2, TomSawyer\_267, Tomas\_258, Tomas\_3, Tribute\_2, Tribute\_248, Watermoore\_2, Watermoore\_249, WhereRU\_259, WhereRU\_3, Wofford\_261, Wofford\_3, Yaboi\_265, Yaboi\_4,

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

- Amabiko\_267, Amabiko\_3, Bordeaux\_260, Bordeaux\_3, EGole\_2, EGole\_256, Jay2Jay\_260, Jay2Jay\_5, JimJam\_271, JimJam\_3, Jollison\_267, Jollison\_3, MindFlayer\_2, MindFlayer\_254, Mugiwara\_2, Mugiwara\_274, Peebs\_2, Peebs\_249, PumpkinSpice\_267, PumpkinSpice\_3, Quarant19\_264, Quarant19\_3, Spelly\_269, Spelly\_3, Spilled\_2, Spilled\_270, Warpy\_257, Warpy\_5, Wipeout\_2, Wipeout\_255,

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

- Akoni\_17, AloeVera\_17, Ashton\_17, Astartes\_18, Atraxi\_17, Atuin\_173, Barroma\_17, Belfort\_218, Bloom\_179, Cinna\_55, Comrade\_215, Cressida\_58, Dewdrop\_143, Dorin\_194, DunneganBoMo\_171, Emma1919\_221, EugeneKrabs\_18, Faust\_215, Forrest\_221, Francesca\_197, Francob\_223, Fullmetal\_18, Gilson\_218, Grayson\_185, Hendrix\_145, Jada\_220, JordanFarm\_17, Karp\_214, Kenrey\_224, KingKamren\_18, Kozi\_54, Leaf\_143, Margaery\_54, Matzah\_57, Mazun\_18, MeganTheeKilla\_223, Megan\_56, MementoMori\_56, Mimi\_181, Moab\_220, Moleficent\_18, Morrill\_17, Nicole72\_57, Patbob\_174, Patelgo\_221, Peregrin\_181, Pharky\_18, Phedro\_18, Phracted\_18, Phredrick\_223, PhriedRice\_18, Racecar\_176, Rasputia\_140, RicoCaldo\_18, SeresaTree\_219, Sham\_210, SparkleGoddess\_218, StagePhright\_18, Stigma\_217, Talia1610\_178, Terij\_55, ThirteenKH\_17, Trina\_210, TrippleS\_17, Truong\_17, TunaTartare\_218, Waterlily\_17, Weasels2\_189, Yafa\_17, Zhengyi\_18,

## **Summary by start number:**

Start 2:

- Found in 14 of 209 ( 6.7% ) of genes in pham
- No Manual Annotations of this start.
- Called 14.3% of time when present
- Phage (with cluster) where this start called: Mugiwara\_2 (BE2), Mugiwara\_274 (BE2),

#### Start 4:

- Found in 20 of 209 ( 9.6% ) of genes in pham
- Manual Annotations of this start: 4 of 164
- Called 20.0% of time when present
- Phage (with cluster) where this start called: EGole\_2 (BE1), EGole\_256 (BE1), Peebs\_2 (BE1), Peebs\_249 (BE1),

#### Start 11:

- Found in 44 of 209 ( 21.1% ) of genes in pham
- Manual Annotations of this start: 4 of 164
- Called 9.1% of time when present
- Phage (with cluster) where this start called: Jay2Jay\_260 (BE1), Jay2Jay\_5 (BE1), Warpy\_257 (BE1), Warpy\_5 (BE1),

#### Start 18:

- Found in 36 of 209 ( 17.2% ) of genes in pham
- Manual Annotations of this start: 18 of 164
- Called 55.6% of time when present
- Phage (with cluster) where this start called: Amabiko\_267 (BE2), Amabiko\_3 (BE2), Bordeaux\_260 (BE2), Bordeaux\_3 (BE2), JimJam\_271 (BE2), JimJam\_3 (BE2), Jollison\_267 (BE2), Jollison\_3 (BE2), MindFlayer\_2 (BE2), MindFlayer\_254 (BE2), PumpkinSpice\_267 (BE2), PumpkinSpice\_3 (BE2), Quarant19\_264 (BE2), Quarant19\_3 (BE2), Spelly\_269 (BE2), Spelly\_3 (BE2), Spilled\_2 (BE2), Spilled\_270 (BE2), Wipeout\_2 (BE2), Wipeout\_255 (BE2),

#### Start 20:

- Found in 8 of 209 ( 3.8% ) of genes in pham
- Manual Annotations of this start: 8 of 164
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Belfort\_218 (BK1), Comrade\_215 (BK1), Francob\_223 (BK1), Karp\_214 (BK1), Moab\_220 (BK1), Patelgo\_221 (BK1), SparkleGoddess\_218 (BK1), Stigma\_217 (BK1),

#### Start 21:

- Found in 6 of 209 ( 2.9% ) of genes in pham
- Manual Annotations of this start: 4 of 164
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Dorin\_194 (CG), Francesca\_197 (CG), Grayson\_185 (CB), Peregrin\_181 (CB), Trina\_210 (CE), Weasels2\_189 (CB),

#### Start 22:

- Found in 18 of 209 ( 8.6% ) of genes in pham
- Manual Annotations of this start: 11 of 164
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Atuin\_173 (FC), Bloom\_179 (FC), DunneganBoMo\_171 (FC), Emma1919\_221 (BK1), Faust\_215 (BK1), Forrest\_221 (BK1), Gilson\_218 (BK1), Jada\_220 (BK1), Kenrey\_224 (BK1), MeganTheeKilla\_223

(BK1), Mimi\_181 (FC), Patbob\_174 (FC), Phredrick\_223 (BK1), Racecar\_176 (FC), SeresaTree\_219 (BK1), Sham\_210 (BK1), Talia1610\_178 (FC), TunaTartare\_218 (BK1),

#### Start 23:

- Found in 139 of 209 ( 66.5% ) of genes in pham
- Manual Annotations of this start: 85 of 164
- Called 78.4% of time when present
- Phage (with cluster) where this start called: Anedea\_265 (BE1), Anedea\_3 (BE1), Angela\_2 (BE1), Angela\_259 (BE1), Annadreamy\_205 (BK1), Bartholomune\_253 (BE1), Bartholomune\_3 (BE1), Battuta\_260 (BE2), Battuta\_3 (BE2), Beuffert\_213 (BK1), BlueOtter\_2 (BE1), BlueOtter\_254 (BE1), Blueeyedbeauty\_214 (BK1), Bmoc\_2 (BE1), Bmoc\_258 (BE1), BoomerJR\_259 (BE2), BoomerJR\_4 (BE2), Braelyn\_248 (BE1), Braelyn\_3 (BE1), CeilingFan\_2 (BE2), CeilingFan\_276 (BE2), Cross\_2 (BE1), Cross\_250 (BE1), Cursive\_2 (BE1), Cursive\_256 (BE1), Elmer\_279 (BE2), Elmer\_3 (BE2), Enygma\_2 (BE2), Enygma\_270 (BE2), Evy\_2 (BE1), Evy\_240 (BE1), Genie2\_259 (BE2), Genie2\_4 (BE2), Gibbi\_2 (BE2), Gibbi\_273 (BE2), HangryHippo\_2 (BE1), HangryHippo\_254 (BE1), IchabodCrane\_2 (BE2), IchabodCrane\_255 (BE2), Karimac\_261 (BE2), Karimac\_3 (BE2), KentuckyRacer\_277 (BE2), KentuckyRacer\_3 (BE2), Larnav\_263 (BE1), Larnav\_4 (BE1), Leo04\_2 (BE1), Leo04\_253 (BE1), Liandry\_252 (BE1), Liandry\_3 (BE1), LilMartin\_2 (BE1), LilMartin\_254 (BE1), Limpid\_212 (BK1), LukeCage\_2 (BE2), LukeCage\_265 (BE2), Lululemon\_2 (BE1), Lululemon\_252 (BE1), Mildred21\_266 (BE1), Mildred21\_3 (BE1), MulchMansion\_2 (BE1), MulchMansion\_258 (BE1), Navo\_2 (BE1), Navo\_252 (BE1), NiceHouse\_208 (CE), NootNoot\_248 (BE1), NootNoot\_3 (BE1), PacManQ\_2 (BE1), PacManQ\_253 (BE1), Paradiddles\_244 (BE1), Paradiddles\_3 (BE1), Pepperwood\_252 (BE1), Pepperwood\_3 (BE1), Persimmon\_2 (BE1), Persimmon\_253 (BE1), PinkiePie\_253 (BE1), PinkiePie\_3 (BE1), SaltySpittoon\_263 (BE2), SaltySpittoon\_3 (BE2), Samisti12\_2 (BE1), Samisti12\_253 (BE1), Sollertia\_260 (BE2), Sollertia\_4 (BE2), Squillium\_255 (BE1), Squillium\_3 (BE1), Stanimal\_259 (BE2), Stanimal\_4 (BE2), StarPlatinum\_2 (BE2), StarPlatinum\_272 (BE2), Starbow\_260 (BE2), Starbow\_3 (BE2), Sushi23\_2 (BE1), Sushi23\_253 (BE1), Targaryen\_2 (BE1), Targaryen\_253 (BE1), Teutsch\_2 (BE1), Teutsch\_249 (BE1), TomSawyer\_2 (BE2), TomSawyer\_267 (BE2), Tomas\_258 (BE2), Tomas\_3 (BE2), Tribute\_2 (BE1), Tribute\_248 (BE1), Watermoore\_2 (BE1), Watermoore\_249 (BE1), WhereRU\_259 (BE1), WhereRU\_3 (BE1), Wofford\_261 (BE2), Wofford\_3 (BE2), Yaboi\_265 (BE2), Yaboi\_4 (BE2),

#### Start 24:

- Found in 38 of 209 ( 18.2% ) of genes in pham
- Manual Annotations of this start: 30 of 164
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Akoni\_17 (EK2), AloeVera\_17 (EK2), Ashton\_17 (EK2), Astartes\_18 (EK2), Atraxi\_17 (EK2), Barroma\_17 (EK2), Cinna\_55 (EI), Cressida\_58 (EI), Dewdrop\_143 (GC), EugeneKrabs\_18 (EK), Fullmetal\_18 (EK2), Hendrix\_145 (GC), JordanFarm\_17 (EK2), KingKamren\_18 (EK), Kozi\_54 (EI), Leaf\_143 (GC), Margaery\_54 (EI), Matzah\_57 (EI), Mazun\_18 (EK2), Megan\_56 (EC), MementoMori\_56 (EI), Moleficent\_18 (EK2), Morrill\_17 (EK2), Nicole72\_57 (EC), Pharky\_18 (EK2), Phedro\_18 (EK2), Phracted\_18 (EK2), PhriedRice\_18 (EK2), Rasputia\_140 (GC), RicoCaldo\_18 (EK2), StagePhright\_18 (EK2), Terij\_55 (EI), ThirteenKH\_17 (EK2), TrippleS\_17 (EK2), Truong\_17 (EK2), Waterlily\_17 (EK2), Yafa\_17 (EK2), Zhengyi\_18 (EK),

## Summary by clusters:

There are 12 clusters represented in this pham: EI, EK, CB, CG, EC, FC, GC, BK1, CE, BE2, BE1, EK2,

Info for manual annotations of cluster BE1:

- Start number 4 was manually annotated 4 times for cluster BE1.
- Start number 11 was manually annotated 4 times for cluster BE1.
- Start number 23 was manually annotated 48 times for cluster BE1.

Info for manual annotations of cluster BE2:

- Start number 18 was manually annotated 18 times for cluster BE2.
- Start number 23 was manually annotated 32 times for cluster BE2.

Info for manual annotations of cluster BK1:

- Start number 20 was manually annotated 8 times for cluster BK1.
- Start number 22 was manually annotated 10 times for cluster BK1.
- Start number 23 was manually annotated 4 times for cluster BK1.

Info for manual annotations of cluster CB:

- Start number 21 was manually annotated 3 times for cluster CB.

Info for manual annotations of cluster CE:

- Start number 21 was manually annotated 1 time for cluster CE.
- Start number 23 was manually annotated 1 time for cluster CE.

Info for manual annotations of cluster EC:

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

Info for manual annotations of cluster EI:

- Start number 24 was manually annotated 7 times for cluster EI.

Info for manual annotations of cluster EK:

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

Info for manual annotations of cluster EK2:

- Start number 24 was manually annotated 15 times for cluster EK2.

Info for manual annotations of cluster FC:

- Start number 22 was manually annotated 1 time for cluster FC.

Info for manual annotations of cluster GC:

- Start number 24 was manually annotated 4 times for cluster GC.

## Gene Information:

Gene: Akoni\_17 Start: 12296, Stop: 11307, Start Num: 24

Candidate Starts for Akoni\_17:

(Start: 24 @12296 has 30 MA's), (40, 12182), (43, 12167), (69, 12053), (73, 12014), (74, 12005), (85, 11921), (111, 11792), (124, 11699), (137, 11612), (162, 11492), (171, 11414), (176, 11372), (178,



11354), (184, 11327),

Gene: AloeVera\_17 Start: 12296, Stop: 11307, Start Num: 24

Candidate Starts for AloeVera\_17:

(Start: 24 @12296 has 30 MA's), (40, 12182), (43, 12167), (69, 12053), (73, 12014), (74, 12005), (85, 11921), (111, 11792), (124, 11699), (137, 11612), (162, 11492), (171, 11414), (176, 11372), (178, 11354), (184, 11327),

Gene: Amabiko\_267 Start: 121477, Stop: 120437, Start Num: 18

Candidate Starts for Amabiko\_267:

(Start: 18 @121477 has 18 MA's), (Start: 23 @121432 has 85 MA's), (37, 121321), (43, 121288), (51, 121255), (56, 121243), (58, 121234), (70, 121186), (71, 121168), (72, 121165), (94, 121021), (97, 121012), (104, 120970), (111, 120940), (119, 120901), (122, 120883), (124, 120853), (132, 120790), (157, 120658), (168, 120598), (173, 120550), (180, 120493), (189, 120457),

Gene: Amabiko\_3 Start: 2651, Stop: 1611, Start Num: 18

Candidate Starts for Amabiko\_3:

(Start: 18 @2651 has 18 MA's), (Start: 23 @2606 has 85 MA's), (37, 2495), (43, 2462), (51, 2429), (56, 2417), (58, 2408), (70, 2360), (71, 2342), (72, 2339), (94, 2195), (97, 2186), (104, 2144), (111, 2114), (119, 2075), (122, 2057), (124, 2027), (132, 1964), (157, 1832), (168, 1772), (173, 1724), (180, 1667), (189, 1631),

Gene: Anedea\_3 Start: 2288, Stop: 1266, Start Num: 23

Candidate Starts for Anedea\_3:

(Start: 23 @2288 has 85 MA's), (34, 2207), (37, 2177), (43, 2144), (46, 2129), (48, 2117), (50, 2111), (57, 2072), (70, 2018), (82, 1907), (83, 1904), (94, 1853), (103, 1808), (111, 1772), (119, 1733), (122, 1715), (124, 1685), (132, 1622), (136, 1604), (151, 1526), (157, 1493), (173, 1385), (175, 1367), (180, 1328),

Gene: Anedea\_265 Start: 125337, Stop: 124315, Start Num: 23

Candidate Starts for Anedea\_265:

(Start: 23 @125337 has 85 MA's), (34, 125256), (37, 125226), (43, 125193), (46, 125178), (48, 125166), (50, 125160), (57, 125121), (70, 125067), (82, 124956), (83, 124953), (94, 124902), (103, 124857), (111, 124821), (119, 124782), (122, 124764), (124, 124734), (132, 124671), (136, 124653), (151, 124575), (157, 124542), (173, 124434), (175, 124416), (180, 124377),

Gene: Angela\_2 Start: 2274, Stop: 1258, Start Num: 23

Candidate Starts for Angela\_2:

(19, 2286), (Start: 23 @2274 has 85 MA's), (34, 2193), (37, 2163), (46, 2115), (47, 2106), (48, 2103), (50, 2097), (53, 2073), (57, 2058), (70, 2004), (82, 1893), (94, 1839), (111, 1758), (119, 1719), (122, 1701), (124, 1671), (132, 1608), (151, 1512), (157, 1479), (168, 1419), (173, 1371), (175, 1353), (180, 1314),

Gene: Angela\_259 Start: 124677, Stop: 123661, Start Num: 23

Candidate Starts for Angela\_259:

(19, 124689), (Start: 23 @124677 has 85 MA's), (34, 124596), (37, 124566), (46, 124518), (47, 124509), (48, 124506), (50, 124500), (53, 124476), (57, 124461), (70, 124407), (82, 124296), (94, 124242), (111, 124161), (119, 124122), (122, 124104), (124, 124074), (132, 124011), (151, 123915), (157, 123882), (168, 123822), (173, 123774), (175, 123756), (180, 123717),

Gene: Annadreamy\_205 Start: 103409, Stop: 104425, Start Num: 23

Candidate Starts for Annadreamy\_205:

(Start: 23 @103409 has 85 MA's), (25, 103436), (35, 103508), (37, 103523), (45, 103562), (64, 103631), (71, 103676), (99, 103850), (108, 103898), (114, 103934), (116, 103940), (123, 103985), (132, 104060), (137, 104084), (164, 104219), (177, 104348), (178, 104354), (185, 104387), (189, 104399), (190, 104402),

Gene: Ashton\_17 Start: 12300, Stop: 11311, Start Num: 24

Candidate Starts for Ashton\_17:

(Start: 24 @12300 has 30 MA's), (40, 12186), (43, 12171), (69, 12057), (73, 12018), (74, 12009), (85, 11925), (111, 11796), (124, 11703), (137, 11616), (162, 11496), (171, 11418), (176, 11376), (178, 11358), (184, 11331),

Gene: Astartes\_18 Start: 12572, Stop: 11568, Start Num: 24

Candidate Starts for Astartes\_18:

(Start: 24 @12572 has 30 MA's), (43, 12443), (67, 12347), (73, 12278), (74, 12269), (83, 12194), (111, 12056), (124, 11963), (134, 11891), (137, 11876), (140, 11861), (143, 11849), (148, 11831), (154, 11786), (174, 11654), (178, 11615), (188, 11573),

Gene: Atraxi\_17 Start: 12329, Stop: 11325, Start Num: 24

Candidate Starts for Atraxi\_17:

(Start: 24 @12329 has 30 MA's), (43, 12200), (67, 12104), (73, 12035), (74, 12026), (85, 11942), (111, 11813), (124, 11720), (134, 11648), (140, 11618), (143, 11606), (148, 11588), (154, 11543), (174, 11411), (178, 11372), (188, 11330),

Gene: Atuin\_173 Start: 115486, Stop: 116493, Start Num: 22

Candidate Starts for Atuin\_173:

(Start: 22 @115486 has 11 MA's), (26, 115528), (34, 115573), (48, 115660), (75, 115816), (84, 115897), (99, 115960), (114, 116044), (128, 116134), (134, 116179), (135, 116182), (155, 116266), (156, 116272), (157, 116278),

Gene: Barroma\_17 Start: 12296, Stop: 11307, Start Num: 24

Candidate Starts for Barroma\_17:

(Start: 24 @12296 has 30 MA's), (40, 12182), (43, 12167), (69, 12053), (73, 12014), (74, 12005), (85, 11921), (111, 11792), (124, 11699), (137, 11612), (162, 11492), (171, 11414), (176, 11372), (178, 11354), (184, 11327),

Gene: Bartholomune\_3 Start: 2417, Stop: 1404, Start Num: 23

Candidate Starts for Bartholomune\_3:

(3, 2567), (7, 2531), (Start: 11 @2510 has 4 MA's), (14, 2492), (Start: 23 @2417 has 85 MA's), (34, 2336), (37, 2306), (48, 2246), (53, 2216), (57, 2201), (58, 2198), (70, 2150), (82, 2039), (94, 1985), (103, 1940), (111, 1904), (119, 1865), (122, 1847), (124, 1817), (151, 1658), (157, 1625), (168, 1565), (173, 1517), (175, 1499), (180, 1460),

Gene: Bartholomune\_253 Start: 123516, Stop: 122503, Start Num: 23

Candidate Starts for Bartholomune\_253:

(3, 123666), (7, 123630), (Start: 11 @123609 has 4 MA's), (14, 123591), (Start: 23 @123516 has 85 MA's), (34, 123435), (37, 123405), (48, 123345), (53, 123315), (57, 123300), (58, 123297), (70, 123249), (82, 123138), (94, 123084), (103, 123039), (111, 123003), (119, 122964), (122, 122946), (124, 122916), (151, 122757), (157, 122724), (168, 122664), (173, 122616), (175, 122598), (180, 122559),

Gene: Battuta\_260 Start: 120761, Stop: 119766, Start Num: 23

Candidate Starts for Battuta\_260:

(Start: 18 @120806 has 18 MA's), (Start: 23 @120761 has 85 MA's), (37, 120650), (43, 120617), (51, 120584), (56, 120572), (58, 120563), (70, 120515), (71, 120497), (72, 120494), (94, 120350), (97, 120341), (104, 120299), (111, 120269), (119, 120230), (122, 120212), (124, 120182), (132, 120119), (157, 119987), (168, 119927), (173, 119879), (180, 119822), (189, 119786),

Gene: Battuta\_3 Start: 2606, Stop: 1611, Start Num: 23

Candidate Starts for Battuta\_3:

(Start: 18 @2651 has 18 MA's), (Start: 23 @2606 has 85 MA's), (37, 2495), (43, 2462), (51, 2429), (56, 2417), (58, 2408), (70, 2360), (71, 2342), (72, 2339), (94, 2195), (97, 2186), (104, 2144), (111, 2114), (119, 2075), (122, 2057), (124, 2027), (132, 1964), (157, 1832), (168, 1772), (173, 1724), (180, 1667), (189, 1631),

Gene: Belfort\_218 Start: 108041, Stop: 109063, Start Num: 20

Candidate Starts for Belfort\_218:

(Start: 20 @108041 has 8 MA's), (25, 108071), (37, 108152), (42, 108170), (48, 108212), (53, 108230), (58, 108248), (87, 108428), (99, 108491), (104, 108524), (107, 108536), (108, 108539), (110, 108551), (123, 108626), (132, 108701), (137, 108725), (144, 108755), (155, 108818), (189, 109037),

Gene: Beuffert\_213 Start: 107581, Stop: 108594, Start Num: 23

Candidate Starts for Beuffert\_213:

(Start: 23 @107581 has 85 MA's), (25, 107608), (35, 107680), (37, 107695), (45, 107734), (64, 107803), (71, 107848), (99, 108022), (114, 108106), (116, 108112), (123, 108157), (132, 108232), (137, 108256), (164, 108391), (177, 108520), (189, 108571), (190, 108574),

Gene: Bloom\_179 Start: 116047, Stop: 117021, Start Num: 22

Candidate Starts for Bloom\_179:

(Start: 22 @116047 has 11 MA's), (26, 116089), (84, 116428), (99, 116491), (106, 116533), (118, 116587), (128, 116665), (157, 116809), (165, 116836), (166, 116842), (183, 116980),

Gene: BlueOtter\_2 Start: 2225, Stop: 1212, Start Num: 23

Candidate Starts for BlueOtter\_2:

(Start: 4 @2372 has 4 MA's), (Start: 11 @2318 has 4 MA's), (14, 2300), (Start: 23 @2225 has 85 MA's), (37, 2114), (43, 2081), (48, 2054), (51, 2045), (53, 2024), (57, 2009), (70, 1958), (82, 1847), (94, 1793), (111, 1712), (119, 1673), (122, 1655), (124, 1625), (132, 1562), (150, 1478), (151, 1466), (157, 1433), (168, 1373), (173, 1325), (175, 1307), (180, 1268),

Gene: BlueOtter\_254 Start: 123312, Stop: 122299, Start Num: 23

Candidate Starts for BlueOtter\_254:

(Start: 4 @123459 has 4 MA's), (Start: 11 @123405 has 4 MA's), (14, 123387), (Start: 23 @123312 has 85 MA's), (37, 123201), (43, 123168), (48, 123141), (51, 123132), (53, 123111), (57, 123096), (70, 123045), (82, 122934), (94, 122880), (111, 122799), (119, 122760), (122, 122742), (124, 122712), (132, 122649), (150, 122565), (151, 122553), (157, 122520), (168, 122460), (173, 122412), (175, 122394), (180, 122355),

Gene: Blueeyedbeauty\_214 Start: 107117, Stop: 108130, Start Num: 23

Candidate Starts for Blueeyedbeauty\_214:

(Start: 23 @107117 has 85 MA's), (25, 107144), (35, 107216), (37, 107231), (45, 107270), (64, 107339), (99, 107558), (108, 107606), (114, 107642), (116, 107648), (123, 107693), (132, 107768), (137, 107792), (164, 107927), (177, 108056), (189, 108107), (190, 108110),

Gene: Bmoc\_2 Start: 2308, Stop: 1286, Start Num: 23

Candidate Starts for Bmoc\_2:

(Start: 23 @2308 has 85 MA's), (34, 2227), (37, 2197), (46, 2149), (48, 2137), (50, 2131), (57, 2092), (70, 2038), (82, 1927), (83, 1924), (94, 1873), (103, 1828), (111, 1792), (119, 1753), (122, 1735), (124, 1705), (132, 1642), (136, 1624), (151, 1546), (157, 1513), (173, 1405), (175, 1387), (180, 1348),

Gene: Bmoc\_258 Start: 124130, Stop: 123108, Start Num: 23

Candidate Starts for Bmoc\_258:

(Start: 23 @124130 has 85 MA's), (34, 124049), (37, 124019), (46, 123971), (48, 123959), (50, 123953), (57, 123914), (70, 123860), (82, 123749), (83, 123746), (94, 123695), (103, 123650), (111, 123614), (119, 123575), (122, 123557), (124, 123527), (132, 123464), (136, 123446), (151, 123368), (157, 123335), (173, 123227), (175, 123209), (180, 123170),

Gene: BoomerJR\_259 Start: 121416, Stop: 120415, Start Num: 23

Candidate Starts for BoomerJR\_259:

(15, 121482), (16, 121473), (Start: 23 @121416 has 85 MA's), (37, 121305), (58, 121218), (89, 121026), (94, 121005), (97, 120996), (104, 120954), (111, 120924), (119, 120885), (122, 120867), (124, 120837), (132, 120774), (157, 120642), (168, 120582), (173, 120534), (175, 120516), (180, 120477),

Gene: BoomerJR\_4 Start: 2628, Stop: 1627, Start Num: 23

Candidate Starts for BoomerJR\_4:

(15, 2694), (16, 2685), (Start: 23 @2628 has 85 MA's), (37, 2517), (58, 2430), (89, 2238), (94, 2217), (97, 2208), (104, 2166), (111, 2136), (119, 2097), (122, 2079), (124, 2049), (132, 1986), (157, 1854), (168, 1794), (173, 1746), (175, 1728), (180, 1689),

Gene: Bordeaux\_3 Start: 2651, Stop: 1611, Start Num: 18

Candidate Starts for Bordeaux\_3:

(Start: 18 @2651 has 18 MA's), (Start: 23 @2606 has 85 MA's), (37, 2495), (43, 2462), (51, 2429), (56, 2417), (58, 2408), (70, 2360), (71, 2342), (72, 2339), (94, 2195), (97, 2186), (104, 2144), (111, 2114), (119, 2075), (122, 2057), (124, 2027), (132, 1964), (157, 1832), (168, 1772), (173, 1724), (180, 1667), (189, 1631),

Gene: Bordeaux\_260 Start: 121389, Stop: 120349, Start Num: 18

Candidate Starts for Bordeaux\_260:

(Start: 18 @121389 has 18 MA's), (Start: 23 @121344 has 85 MA's), (37, 121233), (43, 121200), (51, 121167), (56, 121155), (58, 121146), (70, 121098), (71, 121080), (72, 121077), (94, 120933), (97, 120924), (104, 120882), (111, 120852), (119, 120813), (122, 120795), (124, 120765), (132, 120702), (157, 120570), (168, 120510), (173, 120462), (180, 120405), (189, 120369),

Gene: Braelyn\_3 Start: 2429, Stop: 1416, Start Num: 23

Candidate Starts for Braelyn\_3:

(3, 2579), (7, 2543), (Start: 11 @2522 has 4 MA's), (14, 2504), (Start: 23 @2429 has 85 MA's), (34, 2348), (37, 2318), (48, 2258), (53, 2228), (57, 2213), (58, 2210), (70, 2162), (82, 2051), (94, 1997), (103, 1952), (111, 1916), (119, 1877), (122, 1859), (124, 1829), (151, 1670), (157, 1637), (168, 1577), (173, 1529), (175, 1511), (180, 1472),

Gene: Braelyn\_248 Start: 122839, Stop: 121826, Start Num: 23

Candidate Starts for Braelyn\_248:

(3, 122989), (7, 122953), (Start: 11 @122932 has 4 MA's), (14, 122914), (Start: 23 @122839 has 85 MA's), (34, 122758), (37, 122728), (48, 122668), (53, 122638), (57, 122623), (58, 122620), (70, 122572), (82, 122461), (94, 122407), (103, 122362), (111, 122326), (119, 122287), (122, 122269), (124, 122239), (151, 122080), (157, 122047), (168, 121987), (173, 121939), (175, 121921), (180, 121882),

Gene: CeilingFan\_276 Start: 122824, Stop: 121829, Start Num: 23

Candidate Starts for CeilingFan\_276:

(Start: 18 @122869 has 18 MA's), (Start: 23 @122824 has 85 MA's), (37, 122713), (43, 122680), (51, 122647), (56, 122635), (58, 122626), (70, 122578), (71, 122560), (72, 122557), (94, 122413), (97, 122404), (104, 122362), (111, 122332), (119, 122293), (122, 122275), (124, 122245), (132, 122182), (157, 122050), (168, 121990), (173, 121942), (180, 121885), (189, 121849),

Gene: CeilingFan\_2 Start: 2217, Stop: 1222, Start Num: 23

Candidate Starts for CeilingFan\_2:

(Start: 18 @2262 has 18 MA's), (Start: 23 @2217 has 85 MA's), (37, 2106), (43, 2073), (51, 2040), (56, 2028), (58, 2019), (70, 1971), (71, 1953), (72, 1950), (94, 1806), (97, 1797), (104, 1755), (111, 1725), (119, 1686), (122, 1668), (124, 1638), (132, 1575), (157, 1443), (168, 1383), (173, 1335), (180, 1278), (189, 1242),

Gene: Cinna\_55 Start: 38481, Stop: 39482, Start Num: 24

Candidate Starts for Cinna\_55:

(Start: 24 @38481 has 30 MA's), (30, 38529), (34, 38553), (40, 38595), (48, 38637), (65, 38697), (69, 38736), (72, 38760), (73, 38775), (74, 38784), (79, 38811), (80, 38817), (81, 38820), (85, 38868), (117, 39027), (131, 39150), (134, 39162), (137, 39177), (149, 39237), (152, 39252), (163, 39306),

Gene: Comrade\_215 Start: 108241, Stop: 109263, Start Num: 20

Candidate Starts for Comrade\_215:

(Start: 20 @108241 has 8 MA's), (25, 108271), (37, 108352), (42, 108370), (48, 108412), (53, 108430), (58, 108448), (87, 108628), (99, 108691), (104, 108724), (107, 108736), (108, 108739), (110, 108751), (123, 108826), (132, 108901), (137, 108925), (144, 108955), (155, 109018), (189, 109237),

Gene: Cressida\_58 Start: 38132, Stop: 39133, Start Num: 24

Candidate Starts for Cressida\_58:

(Start: 24 @38132 has 30 MA's), (30, 38180), (34, 38204), (40, 38246), (48, 38288), (65, 38348), (69, 38387), (72, 38411), (73, 38426), (79, 38462), (80, 38468), (81, 38471), (85, 38519), (117, 38678), (131, 38801), (134, 38813), (137, 38828), (149, 38888), (152, 38903), (163, 38957), (176, 39068), (187, 39125),

Gene: Cross\_250 Start: 123957, Stop: 122944, Start Num: 23

Candidate Starts for Cross\_250:

(Start: 4 @124104 has 4 MA's), (Start: 11 @124050 has 4 MA's), (14, 124032), (Start: 23 @123957 has 85 MA's), (37, 123846), (43, 123813), (48, 123786), (51, 123777), (53, 123756), (57, 123741), (70, 123690), (82, 123579), (94, 123525), (111, 123444), (119, 123405), (122, 123387), (124, 123357), (132, 123294), (150, 123210), (151, 123198), (157, 123165), (168, 123105), (173, 123057), (175, 123039), (180, 123000),

Gene: Cross\_2 Start: 2225, Stop: 1212, Start Num: 23

Candidate Starts for Cross\_2:

(Start: 4 @2372 has 4 MA's), (Start: 11 @2318 has 4 MA's), (14, 2300), (Start: 23 @2225 has 85 MA's), (37, 2114), (43, 2081), (48, 2054), (51, 2045), (53, 2024), (57, 2009), (70, 1958), (82, 1847), (94, 1793), (111, 1712), (119, 1673), (122, 1655), (124, 1625), (132, 1562), (150, 1478), (151, 1466), (157, 1433), (168, 1373), (173, 1325), (175, 1307), (180, 1268),

Gene: Cursive\_256 Start: 124234, Stop: 123221, Start Num: 23

Candidate Starts for Cursive\_256:

(Start: 23 @124234 has 85 MA's), (37, 124123), (43, 124090), (48, 124063), (51, 124054), (53, 124033), (57, 124018), (70, 123967), (82, 123856), (94, 123802), (111, 123721), (119, 123682), (122, 123664), (124, 123634), (132, 123571), (150, 123487), (151, 123475), (157, 123442), (168, 123382),

(173, 123334), (175, 123316), (180, 123277),

Gene: Cursive\_2 Start: 2225, Stop: 1212, Start Num: 23

Candidate Starts for Cursive\_2:

(Start: 23 @2225 has 85 MA's), (37, 2114), (43, 2081), (48, 2054), (51, 2045), (53, 2024), (57, 2009), (70, 1958), (82, 1847), (94, 1793), (111, 1712), (119, 1673), (122, 1655), (124, 1625), (132, 1562), (150, 1478), (151, 1466), (157, 1433), (168, 1373), (173, 1325), (175, 1307), (180, 1268),

Gene: Dewdrop\_143 Start: 85445, Stop: 86449, Start Num: 24

Candidate Starts for Dewdrop\_143:

(Start: 24 @85445 has 30 MA's), (27, 85475), (41, 85562), (61, 85640), (70, 85703), (80, 85781), (81, 85784), (83, 85823), (91, 85859), (111, 85961), (112, 85967), (114, 85982), (126, 86069), (135, 86129), (147, 86183), (148, 86186), (152, 86216), (160, 86252), (179, 86402),

Gene: Dorin\_194 Start: 106517, Stop: 107539, Start Num: 21

Candidate Starts for Dorin\_194:

(Start: 21 @106517 has 4 MA's), (42, 106646), (51, 106697), (70, 106805), (83, 106910), (84, 106916), (97, 106979), (99, 106988), (107, 107033), (110, 107048), (114, 107072), (119, 107087), (128, 107162), (134, 107207), (186, 107507), (192, 107531),

Gene: DunneganBoMo\_171 Start: 112270, Stop: 113247, Start Num: 22

Candidate Starts for DunneganBoMo\_171:

(Start: 22 @112270 has 11 MA's), (26, 112312), (49, 112438), (75, 112573), (84, 112654), (99, 112717), (114, 112801), (128, 112891), (134, 112936), (157, 113035), (170, 113110),

Gene: EGole\_2 Start: 2795, Stop: 1635, Start Num: 4

Candidate Starts for EGole\_2:

(Start: 4 @2795 has 4 MA's), (Start: 11 @2741 has 4 MA's), (14, 2723), (Start: 23 @2648 has 85 MA's), (37, 2537), (43, 2504), (48, 2477), (51, 2468), (53, 2447), (57, 2432), (70, 2381), (82, 2270), (83, 2267), (94, 2216), (111, 2135), (119, 2096), (122, 2078), (124, 2048), (132, 1985), (136, 1967), (151, 1889), (157, 1856), (168, 1796), (173, 1748),

Gene: EGole\_256 Start: 127107, Stop: 125947, Start Num: 4

Candidate Starts for EGole\_256:

(Start: 4 @127107 has 4 MA's), (Start: 11 @127053 has 4 MA's), (14, 127035), (Start: 23 @126960 has 85 MA's), (37, 126849), (43, 126816), (48, 126789), (51, 126780), (53, 126759), (57, 126744), (70, 126693), (82, 126582), (83, 126579), (94, 126528), (111, 126447), (119, 126408), (122, 126390), (124, 126360), (132, 126297), (136, 126279), (151, 126201), (157, 126168), (168, 126108), (173, 126060),

Gene: Elmer\_3 Start: 2485, Stop: 1490, Start Num: 23

Candidate Starts for Elmer\_3:

(2, 2632), (7, 2593), (8, 2581), (13, 2560), (16, 2542), (Start: 23 @2485 has 85 MA's), (37, 2374), (56, 2296), (58, 2287), (70, 2239), (71, 2221), (72, 2218), (94, 2074), (97, 2065), (111, 1993), (119, 1954), (122, 1936), (124, 1906), (132, 1843), (145, 1786), (157, 1711), (168, 1651), (170, 1630), (173, 1603), (175, 1585), (189, 1510), (191, 1501),

Gene: Elmer\_279 Start: 124853, Stop: 123858, Start Num: 23

Candidate Starts for Elmer\_279:

(2, 125000), (7, 124961), (8, 124949), (13, 124928), (16, 124910), (Start: 23 @124853 has 85 MA's), (37, 124742), (56, 124664), (58, 124655), (70, 124607), (71, 124589), (72, 124586), (94, 124442), (97, 124433), (111, 124361), (119, 124322), (122, 124304), (124, 124274), (132, 124211), (145, 124154), (157, 124079), (168, 124019), (170, 123998), (173, 123971), (175, 123953), (189, 123878), (191, 123869),

Gene: Emma1919\_221 Start: 106800, Stop: 107822, Start Num: 22

Candidate Starts for Emma1919\_221:

(Start: 22 @106800 has 11 MA's), (25, 106830), (37, 106911), (42, 106929), (48, 106971), (53, 106989), (58, 107007), (87, 107187), (99, 107250), (104, 107283), (107, 107295), (108, 107298), (110, 107310), (123, 107385), (132, 107460), (137, 107484), (138, 107490), (144, 107514), (155, 107577), (189, 107799), (192, 107814),

Gene: Enygma\_270 Start: 124595, Stop: 123600, Start Num: 23

Candidate Starts for Enygma\_270:

(2, 124739), (7, 124700), (9, 124685), (12, 124670), (16, 124652), (Start: 23 @124595 has 85 MA's), (37, 124484), (56, 124406), (58, 124397), (92, 124199), (97, 124175), (100, 124163), (104, 124133), (111, 124103), (119, 124064), (122, 124046), (124, 124016), (132, 123953), (157, 123821), (168, 123761), (173, 123713), (180, 123656), (189, 123620),

Gene: Enygma\_2 Start: 2171, Stop: 1176, Start Num: 23

Candidate Starts for Enygma\_2:

(2, 2315), (7, 2276), (9, 2261), (12, 2246), (16, 2228), (Start: 23 @2171 has 85 MA's), (37, 2060), (56, 1982), (58, 1973), (92, 1775), (97, 1751), (100, 1739), (104, 1709), (111, 1679), (119, 1640), (122, 1622), (124, 1592), (132, 1529), (157, 1397), (168, 1337), (173, 1289), (180, 1232), (189, 1196),

Gene: EugeneKrabs\_18 Start: 13122, Stop: 12133, Start Num: 24

Candidate Starts for EugeneKrabs\_18:

(Start: 24 @13122 has 30 MA's), (27, 13092), (31, 13071), (33, 13059), (67, 12909), (72, 12855), (74, 12831), (77, 12816), (102, 12660), (109, 12627), (160, 12327), (171, 12240), (176, 12198), (178, 12180),

Gene: Evy\_2 Start: 2329, Stop: 1316, Start Num: 23

Candidate Starts for Evy\_2:

(Start: 4 @2467 has 4 MA's), (Start: 11 @2422 has 4 MA's), (14, 2404), (19, 2341), (Start: 23 @2329 has 85 MA's), (34, 2248), (37, 2218), (43, 2185), (50, 2152), (53, 2128), (57, 2113), (70, 2062), (94, 1897), (111, 1816), (119, 1777), (122, 1759), (124, 1729), (132, 1666), (136, 1648), (151, 1570), (157, 1537), (173, 1429), (175, 1411), (180, 1372),

Gene: Evy\_240 Start: 124058, Stop: 123045, Start Num: 23

Candidate Starts for Evy\_240:

(Start: 4 @124196 has 4 MA's), (Start: 11 @124151 has 4 MA's), (14, 124133), (19, 124070), (Start: 23 @124058 has 85 MA's), (34, 123977), (37, 123947), (43, 123914), (50, 123881), (53, 123857), (57, 123842), (70, 123791), (94, 123626), (111, 123545), (119, 123506), (122, 123488), (124, 123458), (132, 123395), (136, 123377), (151, 123299), (157, 123266), (173, 123158), (175, 123140), (180, 123101),

Gene: Faust\_215 Start: 108762, Stop: 109772, Start Num: 22

Candidate Starts for Faust\_215:

(Start: 22 @108762 has 11 MA's), (25, 108792), (34, 108843), (37, 108873), (45, 108912), (64, 108981), (113, 109278), (126, 109362), (132, 109410), (137, 109434), (138, 109440), (153, 109518), (160, 109545), (178, 109704), (185, 109737), (186, 109740), (190, 109752),

Gene: Forrest\_221 Start: 107765, Stop: 108787, Start Num: 22

Candidate Starts for Forrest\_221:

(Start: 22 @107765 has 11 MA's), (25, 107795), (37, 107876), (42, 107894), (48, 107936), (53, 107954), (58, 107972), (87, 108152), (99, 108215), (104, 108248), (107, 108260), (108, 108263), (110, 108275), (123, 108350), (132, 108425), (137, 108449), (144, 108479), (155, 108542), (189, 108764),

(192, 108779),

Gene: Francesca\_197 Start: 107439, Stop: 108461, Start Num: 21

Candidate Starts for Francesca\_197:

(Start: 21 @107439 has 4 MA's), (42, 107568), (48, 107610), (51, 107619), (70, 107727), (83, 107832), (84, 107838), (89, 107862), (97, 107901), (99, 107910), (107, 107955), (110, 107970), (114, 107994), (119, 108009), (128, 108084), (134, 108129), (186, 108429),

Gene: Francob\_223 Start: 107816, Stop: 108835, Start Num: 20

Candidate Starts for Francob\_223:

(Start: 20 @107816 has 8 MA's), (25, 107843), (37, 107924), (42, 107942), (48, 107984), (53, 108002), (58, 108020), (66, 108053), (87, 108200), (99, 108263), (101, 108269), (104, 108296), (105, 108302), (107, 108308), (108, 108311), (110, 108323), (123, 108398), (132, 108473), (137, 108497), (144, 108527), (155, 108590), (189, 108809),

Gene: Fullmetal\_18 Start: 12570, Stop: 11566, Start Num: 24

Candidate Starts for Fullmetal\_18:

(Start: 24 @12570 has 30 MA's), (43, 12441), (67, 12345), (73, 12276), (74, 12267), (83, 12192), (111, 12054), (124, 11961), (134, 11889), (137, 11874), (140, 11859), (143, 11847), (148, 11829), (154, 11784), (174, 11652), (178, 11613), (188, 11571),

Gene: Genie2\_259 Start: 121529, Stop: 120528, Start Num: 23

Candidate Starts for Genie2\_259:

(15, 121595), (16, 121586), (Start: 23 @121529 has 85 MA's), (37, 121418), (58, 121331), (89, 121139), (94, 121118), (97, 121109), (104, 121067), (111, 121037), (119, 120998), (122, 120980), (124, 120950), (132, 120887), (157, 120755), (168, 120695), (173, 120647), (175, 120629), (180, 120590),

Gene: Genie2\_4 Start: 2628, Stop: 1627, Start Num: 23

Candidate Starts for Genie2\_4:

(15, 2694), (16, 2685), (Start: 23 @2628 has 85 MA's), (37, 2517), (58, 2430), (89, 2238), (94, 2217), (97, 2208), (104, 2166), (111, 2136), (119, 2097), (122, 2079), (124, 2049), (132, 1986), (157, 1854), (168, 1794), (173, 1746), (175, 1728), (180, 1689),

Gene: Gibbi\_2 Start: 2222, Stop: 1221, Start Num: 23

Candidate Starts for Gibbi\_2:

(2, 2366), (7, 2327), (9, 2312), (12, 2297), (15, 2288), (16, 2279), (Start: 23 @2222 has 85 MA's), (37, 2111), (56, 2033), (89, 1832), (92, 1826), (97, 1802), (100, 1790), (111, 1730), (119, 1691), (122, 1673), (124, 1643), (132, 1580), (157, 1448), (168, 1388), (173, 1340), (180, 1283), (191, 1238),

Gene: Gibbi\_273 Start: 122322, Stop: 121321, Start Num: 23

Candidate Starts for Gibbi\_273:

(2, 122466), (7, 122427), (9, 122412), (12, 122397), (15, 122388), (16, 122379), (Start: 23 @122322 has 85 MA's), (37, 122211), (56, 122133), (89, 121932), (92, 121926), (97, 121902), (100, 121890), (111, 121830), (119, 121791), (122, 121773), (124, 121743), (132, 121680), (157, 121548), (168, 121488), (173, 121440), (180, 121383), (191, 121338),

Gene: Gilson\_218 Start: 106326, Stop: 107348, Start Num: 22

Candidate Starts for Gilson\_218:

(Start: 22 @106326 has 11 MA's), (25, 106356), (37, 106437), (42, 106455), (48, 106497), (53, 106515), (58, 106533), (87, 106713), (99, 106776), (104, 106809), (107, 106821), (108, 106824), (110, 106836), (123, 106911), (132, 106986), (137, 107010), (138, 107016), (144, 107040), (155, 107103), (189, 107325), (192, 107340),



Gene: Grayson\_185 Start: 96345, Stop: 97394, Start Num: 21

Candidate Starts for Grayson\_185:

(Start: 21 @96345 has 4 MA's), (27, 96384), (33, 96417), (38, 96462), (45, 96498), (54, 96555), (73, 96693), (84, 96774), (86, 96780), (88, 96786), (93, 96819), (113, 96924), (116, 96936), (123, 96981), (124, 96993), (130, 97047), (134, 97065), (157, 97185), (169, 97263), (185, 97359), (191, 97380),

Gene: HangryHippo\_2 Start: 2225, Stop: 1212, Start Num: 23

Candidate Starts for HangryHippo\_2:

(Start: 4 @2372 has 4 MA's), (Start: 11 @2318 has 4 MA's), (14, 2300), (Start: 23 @2225 has 85 MA's), (37, 2114), (43, 2081), (48, 2054), (51, 2045), (53, 2024), (57, 2009), (70, 1958), (82, 1847), (94, 1793), (111, 1712), (119, 1673), (122, 1655), (124, 1625), (132, 1562), (150, 1478), (151, 1466), (157, 1433), (168, 1373), (173, 1325), (175, 1307), (180, 1268),

Gene: HangryHippo\_254 Start: 123312, Stop: 122299, Start Num: 23

Candidate Starts for HangryHippo\_254:

(Start: 4 @123459 has 4 MA's), (Start: 11 @123405 has 4 MA's), (14, 123387), (Start: 23 @123312 has 85 MA's), (37, 123201), (43, 123168), (48, 123141), (51, 123132), (53, 123111), (57, 123096), (70, 123045), (82, 122934), (94, 122880), (111, 122799), (119, 122760), (122, 122742), (124, 122712), (132, 122649), (150, 122565), (151, 122553), (157, 122520), (168, 122460), (173, 122412), (175, 122394), (180, 122355),

Gene: Hendrix\_145 Start: 89503, Stop: 90504, Start Num: 24

Candidate Starts for Hendrix\_145:

(Start: 24 @89503 has 30 MA's), (27, 89533), (44, 89635), (61, 89698), (62, 89707), (70, 89761), (81, 89842), (91, 89917), (114, 90040), (147, 90241), (148, 90244), (152, 90274), (160, 90310), (178, 90457),

Gene: IchabodCrane\_255 Start: 120757, Stop: 119762, Start Num: 23

Candidate Starts for IchabodCrane\_255:

(Start: 18 @120802 has 18 MA's), (Start: 23 @120757 has 85 MA's), (37, 120646), (43, 120613), (51, 120580), (56, 120568), (58, 120559), (70, 120511), (71, 120493), (72, 120490), (94, 120346), (97, 120337), (104, 120295), (111, 120265), (119, 120226), (122, 120208), (124, 120178), (132, 120115), (157, 119983), (168, 119923), (173, 119875), (180, 119818), (189, 119782),

Gene: IchabodCrane\_2 Start: 2214, Stop: 1219, Start Num: 23

Candidate Starts for IchabodCrane\_2:

(Start: 18 @2259 has 18 MA's), (Start: 23 @2214 has 85 MA's), (37, 2103), (43, 2070), (51, 2037), (56, 2025), (58, 2016), (70, 1968), (71, 1950), (72, 1947), (94, 1803), (97, 1794), (104, 1752), (111, 1722), (119, 1683), (122, 1665), (124, 1635), (132, 1572), (157, 1440), (168, 1380), (173, 1332), (180, 1275), (189, 1239),

Gene: Jada\_220 Start: 107002, Stop: 108024, Start Num: 22

Candidate Starts for Jada\_220:

(Start: 22 @107002 has 11 MA's), (25, 107032), (37, 107113), (42, 107131), (48, 107173), (53, 107191), (58, 107209), (87, 107389), (99, 107452), (104, 107485), (107, 107497), (108, 107500), (110, 107512), (123, 107587), (132, 107662), (137, 107686), (138, 107692), (144, 107716), (155, 107779), (189, 108001), (192, 108016),

Gene: Jay2Jay\_5 Start: 2708, Stop: 1602, Start Num: 11

Candidate Starts for Jay2Jay\_5:

(Start: 11 @2708 has 4 MA's), (14, 2690), (19, 2627), (Start: 23 @2615 has 85 MA's), (34, 2534), (37, 2504), (43, 2471), (50, 2438), (53, 2414), (57, 2399), (70, 2348), (94, 2183), (111, 2102), (119, 2063),

(122, 2045), (124, 2015), (132, 1952), (136, 1934), (151, 1856), (157, 1823), (173, 1715), (175, 1697), (180, 1658),

Gene: Jay2Jay\_260 Start: 124801, Stop: 123695, Start Num: 11

Candidate Starts for Jay2Jay\_260:

(Start: 11 @124801 has 4 MA's), (14, 124783), (19, 124720), (Start: 23 @124708 has 85 MA's), (34, 124627), (37, 124597), (43, 124564), (50, 124531), (53, 124507), (57, 124492), (70, 124441), (94, 124276), (111, 124195), (119, 124156), (122, 124138), (124, 124108), (132, 124045), (136, 124027), (151, 123949), (157, 123916), (173, 123808), (175, 123790), (180, 123751),

Gene: JimJam\_271 Start: 124187, Stop: 123147, Start Num: 18

Candidate Starts for JimJam\_271:

(Start: 18 @124187 has 18 MA's), (Start: 23 @124142 has 85 MA's), (37, 124031), (43, 123998), (51, 123965), (56, 123953), (58, 123944), (70, 123896), (71, 123878), (72, 123875), (94, 123731), (97, 123722), (104, 123680), (111, 123650), (119, 123611), (122, 123593), (124, 123563), (132, 123500), (157, 123368), (168, 123308), (173, 123260), (180, 123203), (189, 123167),

Gene: JimJam\_3 Start: 2651, Stop: 1611, Start Num: 18

Candidate Starts for JimJam\_3:

(Start: 18 @2651 has 18 MA's), (Start: 23 @2606 has 85 MA's), (37, 2495), (43, 2462), (51, 2429), (56, 2417), (58, 2408), (70, 2360), (71, 2342), (72, 2339), (94, 2195), (97, 2186), (104, 2144), (111, 2114), (119, 2075), (122, 2057), (124, 2027), (132, 1964), (157, 1832), (168, 1772), (173, 1724), (180, 1667), (189, 1631),

Gene: Jollison\_267 Start: 121326, Stop: 120286, Start Num: 18

Candidate Starts for Jollison\_267:

(Start: 18 @121326 has 18 MA's), (Start: 23 @121281 has 85 MA's), (37, 121170), (43, 121137), (51, 121104), (56, 121092), (58, 121083), (70, 121035), (71, 121017), (72, 121014), (94, 120870), (97, 120861), (104, 120819), (111, 120789), (119, 120750), (122, 120732), (124, 120702), (132, 120639), (157, 120507), (168, 120447), (173, 120399), (180, 120342), (189, 120306),

Gene: Jollison\_3 Start: 2651, Stop: 1611, Start Num: 18

Candidate Starts for Jollison\_3:

(Start: 18 @2651 has 18 MA's), (Start: 23 @2606 has 85 MA's), (37, 2495), (43, 2462), (51, 2429), (56, 2417), (58, 2408), (70, 2360), (71, 2342), (72, 2339), (94, 2195), (97, 2186), (104, 2144), (111, 2114), (119, 2075), (122, 2057), (124, 2027), (132, 1964), (157, 1832), (168, 1772), (173, 1724), (180, 1667), (189, 1631),

Gene: JordanFarm\_17 Start: 12296, Stop: 11307, Start Num: 24

Candidate Starts for JordanFarm\_17:

(Start: 24 @12296 has 30 MA's), (40, 12182), (43, 12167), (69, 12053), (73, 12014), (74, 12005), (85, 11921), (111, 11792), (124, 11699), (137, 11612), (162, 11492), (171, 11414), (176, 11372), (178, 11354), (184, 11327),

Gene: Karimac\_3 Start: 2608, Stop: 1613, Start Num: 23

Candidate Starts for Karimac\_3:

(Start: 18 @2653 has 18 MA's), (Start: 23 @2608 has 85 MA's), (37, 2497), (43, 2464), (51, 2431), (56, 2419), (58, 2410), (70, 2362), (71, 2344), (72, 2341), (94, 2197), (97, 2188), (104, 2146), (111, 2116), (119, 2077), (122, 2059), (124, 2029), (132, 1966), (157, 1834), (168, 1774), (173, 1726), (180, 1669), (189, 1633),

Gene: Karimac\_261 Start: 121927, Stop: 120932, Start Num: 23

Candidate Starts for Karimac\_261:

(Start: 18 @121972 has 18 MA's), (Start: 23 @121927 has 85 MA's), (37, 121816), (43, 121783), (51, 121750), (56, 121738), (58, 121729), (70, 121681), (71, 121663), (72, 121660), (94, 121516), (97, 121507), (104, 121465), (111, 121435), (119, 121396), (122, 121378), (124, 121348), (132, 121285), (157, 121153), (168, 121093), (173, 121045), (180, 120988), (189, 120952),

Gene: Karp\_214 Start: 108408, Stop: 109430, Start Num: 20

Candidate Starts for Karp\_214:

(Start: 20 @108408 has 8 MA's), (25, 108438), (37, 108519), (42, 108537), (48, 108579), (53, 108597), (58, 108615), (87, 108795), (99, 108858), (104, 108891), (107, 108903), (108, 108906), (110, 108918), (123, 108993), (132, 109068), (137, 109092), (144, 109122), (155, 109185), (189, 109404),

Gene: Kenrey\_224 Start: 107547, Stop: 108569, Start Num: 22

Candidate Starts for Kenrey\_224:

(Start: 22 @107547 has 11 MA's), (25, 107577), (37, 107658), (42, 107676), (48, 107718), (58, 107754), (76, 107862), (87, 107934), (99, 107997), (104, 108030), (107, 108042), (108, 108045), (110, 108057), (113, 108075), (123, 108132), (132, 108207), (137, 108231), (144, 108261), (155, 108324), (189, 108546), (192, 108561),

Gene: KentuckyRacer\_277 Start: 123669, Stop: 122674, Start Num: 23

Candidate Starts for KentuckyRacer\_277:

(Start: 18 @123714 has 18 MA's), (Start: 23 @123669 has 85 MA's), (37, 123558), (43, 123525), (51, 123492), (56, 123480), (58, 123471), (70, 123423), (71, 123405), (72, 123402), (94, 123258), (97, 123249), (104, 123207), (111, 123177), (119, 123138), (122, 123120), (124, 123090), (132, 123027), (157, 122895), (168, 122835), (173, 122787), (180, 122730), (189, 122694),

Gene: KentuckyRacer\_3 Start: 2218, Stop: 1223, Start Num: 23

Candidate Starts for KentuckyRacer\_3:

(Start: 18 @2263 has 18 MA's), (Start: 23 @2218 has 85 MA's), (37, 2107), (43, 2074), (51, 2041), (56, 2029), (58, 2020), (70, 1972), (71, 1954), (72, 1951), (94, 1807), (97, 1798), (104, 1756), (111, 1726), (119, 1687), (122, 1669), (124, 1639), (132, 1576), (157, 1444), (168, 1384), (173, 1336), (180, 1279), (189, 1243),

Gene: KingKamren\_18 Start: 13027, Stop: 12038, Start Num: 24

Candidate Starts for KingKamren\_18:

(Start: 24 @13027 has 30 MA's), (27, 12997), (31, 12976), (48, 12871), (68, 12793), (72, 12760), (74, 12736), (77, 12721), (102, 12565), (123, 12442), (160, 12232), (176, 12103), (178, 12085),

Gene: Kozie\_54 Start: 37761, Stop: 38762, Start Num: 24

Candidate Starts for Kozie\_54:

(17, 37689), (Start: 24 @37761 has 30 MA's), (27, 37791), (30, 37809), (34, 37833), (48, 37917), (73, 38055), (80, 38097), (85, 38148), (99, 38214), (109, 38268), (117, 38307), (131, 38430), (134, 38442), (149, 38517), (152, 38532), (154, 38544), (163, 38586), (179, 38718),

Gene: Larnav\_4 Start: 2224, Stop: 1211, Start Num: 23

Candidate Starts for Larnav\_4:

(Start: 23 @2224 has 85 MA's), (37, 2113), (48, 2053), (51, 2044), (53, 2023), (57, 2008), (70, 1957), (82, 1846), (94, 1792), (111, 1711), (119, 1672), (122, 1654), (124, 1624), (132, 1561), (150, 1477), (151, 1465), (157, 1432), (168, 1372), (173, 1324), (175, 1306), (180, 1267),

Gene: Larnav\_263 Start: 124229, Stop: 123216, Start Num: 23

Candidate Starts for Larnav\_263:

(Start: 23 @124229 has 85 MA's), (37, 124118), (48, 124058), (51, 124049), (53, 124028), (57, 124013), (70, 123962), (82, 123851), (94, 123797), (111, 123716), (119, 123677), (122, 123659), (124,

123629), (132, 123566), (150, 123482), (151, 123470), (157, 123437), (168, 123377), (173, 123329), (175, 123311), (180, 123272),

Gene: Leaf\_143 Start: 85376, Stop: 86380, Start Num: 24

Candidate Starts for Leaf\_143:

(Start: 24 @85376 has 30 MA's), (27, 85406), (41, 85493), (61, 85571), (70, 85634), (80, 85712), (81, 85715), (83, 85754), (91, 85790), (111, 85892), (112, 85898), (114, 85913), (126, 86000), (135, 86060), (147, 86114), (148, 86117), (152, 86147), (160, 86183), (179, 86333),

Gene: Leo04\_253 Start: 124342, Stop: 123329, Start Num: 23

Candidate Starts for Leo04\_253:

(Start: 4 @124489 has 4 MA's), (Start: 11 @124435 has 4 MA's), (14, 124417), (Start: 23 @124342 has 85 MA's), (37, 124231), (43, 124198), (48, 124171), (51, 124162), (53, 124141), (57, 124126), (70, 124075), (82, 123964), (94, 123910), (111, 123829), (119, 123790), (122, 123772), (124, 123742), (132, 123679), (150, 123595), (151, 123583), (157, 123550), (168, 123490), (173, 123442), (175, 123424), (180, 123385),

Gene: Leo04\_2 Start: 2224, Stop: 1211, Start Num: 23

Candidate Starts for Leo04\_2:

(Start: 4 @2371 has 4 MA's), (Start: 11 @2317 has 4 MA's), (14, 2299), (Start: 23 @2224 has 85 MA's), (37, 2113), (43, 2080), (48, 2053), (51, 2044), (53, 2023), (57, 2008), (70, 1957), (82, 1846), (94, 1792), (111, 1711), (119, 1672), (122, 1654), (124, 1624), (132, 1561), (150, 1477), (151, 1465), (157, 1432), (168, 1372), (173, 1324), (175, 1306), (180, 1267),

Gene: Liandry\_3 Start: 2417, Stop: 1404, Start Num: 23

Candidate Starts for Liandry\_3:

(3, 2567), (7, 2531), (Start: 11 @2510 has 4 MA's), (14, 2492), (Start: 23 @2417 has 85 MA's), (34, 2336), (37, 2306), (48, 2246), (53, 2216), (57, 2201), (58, 2198), (70, 2150), (82, 2039), (94, 1985), (103, 1940), (111, 1904), (119, 1865), (122, 1847), (124, 1817), (151, 1658), (157, 1625), (168, 1565), (173, 1517), (175, 1499), (180, 1460),

Gene: Liandry\_252 Start: 123938, Stop: 122925, Start Num: 23

Candidate Starts for Liandry\_252:

(3, 124088), (7, 124052), (Start: 11 @124031 has 4 MA's), (14, 124013), (Start: 23 @123938 has 85 MA's), (34, 123857), (37, 123827), (48, 123767), (53, 123737), (57, 123722), (58, 123719), (70, 123671), (82, 123560), (94, 123506), (103, 123461), (111, 123425), (119, 123386), (122, 123368), (124, 123338), (151, 123179), (157, 123146), (168, 123086), (173, 123038), (175, 123020), (180, 122981),

Gene: LilMartin\_254 Start: 123618, Stop: 122602, Start Num: 23

Candidate Starts for LilMartin\_254:

(Start: 23 @123618 has 85 MA's), (37, 123507), (46, 123459), (48, 123447), (50, 123441), (57, 123402), (70, 123348), (82, 123237), (94, 123183), (111, 123102), (119, 123063), (122, 123045), (124, 123015), (132, 122952), (151, 122856), (157, 122823), (168, 122763), (173, 122715), (175, 122697), (180, 122658),

Gene: LilMartin\_2 Start: 2274, Stop: 1258, Start Num: 23

Candidate Starts for LilMartin\_2:

(Start: 23 @2274 has 85 MA's), (37, 2163), (46, 2115), (48, 2103), (50, 2097), (57, 2058), (70, 2004), (82, 1893), (94, 1839), (111, 1758), (119, 1719), (122, 1701), (124, 1671), (132, 1608), (151, 1512), (157, 1479), (168, 1419), (173, 1371), (175, 1353), (180, 1314),

Gene: Limpid\_212 Start: 108722, Stop: 109738, Start Num: 23

Candidate Starts for Limpid\_212:

(Start: 23 @108722 has 85 MA's), (25, 108749), (35, 108821), (37, 108836), (45, 108875), (64, 108944), (71, 108989), (99, 109163), (108, 109211), (114, 109247), (116, 109253), (123, 109298), (132, 109373), (137, 109397), (164, 109532), (177, 109661), (178, 109667), (185, 109700), (189, 109712), (190, 109715),

Gene: LukeCage\_2 Start: 2214, Stop: 1213, Start Num: 23

Candidate Starts for LukeCage\_2:

(2, 2358), (7, 2319), (9, 2304), (12, 2289), (16, 2271), (Start: 23 @2214 has 85 MA's), (37, 2103), (45, 2064), (46, 2055), (58, 2016), (89, 1824), (97, 1794), (100, 1782), (105, 1746), (111, 1722), (119, 1683), (122, 1665), (124, 1635), (132, 1572), (136, 1554), (142, 1524), (157, 1440), (168, 1380), (173, 1332), (175, 1314),

Gene: LukeCage\_265 Start: 123118, Stop: 122117, Start Num: 23

Candidate Starts for LukeCage\_265:

(2, 123262), (7, 123223), (9, 123208), (12, 123193), (16, 123175), (Start: 23 @123118 has 85 MA's), (37, 123007), (45, 122968), (46, 122959), (58, 122920), (89, 122728), (97, 122698), (100, 122686), (105, 122650), (111, 122626), (119, 122587), (122, 122569), (124, 122539), (132, 122476), (136, 122458), (142, 122428), (157, 122344), (168, 122284), (173, 122236), (175, 122218),

Gene: Lululemon\_252 Start: 123117, Stop: 122104, Start Num: 23

Candidate Starts for Lululemon\_252:

(10, 123213), (Start: 23 @123117 has 85 MA's), (37, 123006), (43, 122973), (48, 122946), (51, 122937), (53, 122916), (57, 122901), (70, 122850), (82, 122739), (94, 122685), (111, 122604), (119, 122565), (122, 122547), (124, 122517), (132, 122454), (150, 122370), (151, 122358), (157, 122325), (168, 122265), (173, 122217), (175, 122199), (180, 122160),

Gene: Lululemon\_2 Start: 2225, Stop: 1212, Start Num: 23

Candidate Starts for Lululemon\_2:

(10, 2321), (Start: 23 @2225 has 85 MA's), (37, 2114), (43, 2081), (48, 2054), (51, 2045), (53, 2024), (57, 2009), (70, 1958), (82, 1847), (94, 1793), (111, 1712), (119, 1673), (122, 1655), (124, 1625), (132, 1562), (150, 1478), (151, 1466), (157, 1433), (168, 1373), (173, 1325), (175, 1307), (180, 1268),

Gene: Margaery\_54 Start: 37699, Stop: 38700, Start Num: 24

Candidate Starts for Margaery\_54:

(Start: 24 @37699 has 30 MA's), (30, 37747), (34, 37771), (40, 37813), (65, 37915), (72, 37978), (73, 37993), (79, 38029), (80, 38035), (81, 38038), (85, 38086), (117, 38245), (131, 38368), (134, 38380), (137, 38395), (149, 38455), (152, 38470), (163, 38524), (176, 38635), (187, 38692),

Gene: Matzah\_57 Start: 38560, Stop: 39561, Start Num: 24

Candidate Starts for Matzah\_57:

(Start: 24 @38560 has 30 MA's), (30, 38608), (34, 38632), (40, 38674), (65, 38776), (69, 38815), (73, 38854), (79, 38890), (80, 38896), (81, 38899), (85, 38947), (117, 39106), (131, 39229), (134, 39241), (137, 39256), (149, 39316), (152, 39331), (163, 39385), (176, 39496),

Gene: Mazun\_18 Start: 12571, Stop: 11567, Start Num: 24

Candidate Starts for Mazun\_18:

(Start: 24 @12571 has 30 MA's), (43, 12442), (67, 12346), (73, 12277), (74, 12268), (83, 12193), (111, 12055), (124, 11962), (134, 11890), (137, 11875), (140, 11860), (148, 11830), (154, 11785), (174, 11653), (178, 11614), (188, 11572),

Gene: Megan\_56 Start: 41734, Stop: 42738, Start Num: 24

Candidate Starts for Megan\_56:

(Start: 24 @41734 has 30 MA's), (27, 41764), (28, 41773), (30, 41782), (34, 41806), (39, 41845), (40, 41848), (65, 41950), (78, 42058), (81, 42076), (85, 42124), (99, 42190), (111, 42253), (114, 42274), (115, 42277), (121, 42313), (123, 42334), (134, 42418), (137, 42433), (141, 42454), (149, 42493), (152, 42508), (158, 42541), (159, 42544), (163, 42562), (167, 42601), (171, 42631), (182, 42709),

Gene: MeganTheeKilla\_223 Start: 107197, Stop: 108219, Start Num: 22

Candidate Starts for MeganTheeKilla\_223:

(Start: 22 @107197 has 11 MA's), (25, 107227), (37, 107308), (42, 107326), (48, 107368), (58, 107404), (87, 107584), (99, 107647), (104, 107680), (107, 107692), (108, 107695), (110, 107707), (123, 107782), (132, 107857), (137, 107881), (144, 107911), (155, 107974), (189, 108196),

Gene: MementoMori\_56 Start: 38139, Stop: 39140, Start Num: 24

Candidate Starts for MementoMori\_56:

(Start: 24 @38139 has 30 MA's), (30, 38187), (34, 38211), (40, 38253), (48, 38295), (65, 38355), (69, 38394), (72, 38418), (73, 38433), (79, 38469), (80, 38475), (81, 38478), (85, 38526), (117, 38685), (131, 38808), (134, 38820), (137, 38835), (149, 38895), (152, 38910), (163, 38964),

Gene: Mildred21\_3 Start: 2462, Stop: 1440, Start Num: 23

Candidate Starts for Mildred21\_3:

(Start: 23 @2462 has 85 MA's), (37, 2351), (46, 2303), (48, 2291), (50, 2285), (57, 2246), (70, 2192), (82, 2081), (94, 2027), (103, 1982), (109, 1955), (122, 1889), (124, 1859), (132, 1796), (151, 1700), (157, 1667), (173, 1559),

Gene: Mildred21\_266 Start: 123620, Stop: 122598, Start Num: 23

Candidate Starts for Mildred21\_266:

(Start: 23 @123620 has 85 MA's), (37, 123509), (46, 123461), (48, 123449), (50, 123443), (57, 123404), (70, 123350), (82, 123239), (94, 123185), (103, 123140), (109, 123113), (122, 123047), (124, 123017), (132, 122954), (151, 122858), (157, 122825), (173, 122717),

Gene: Mimi\_181 Start: 115674, Stop: 116648, Start Num: 22

Candidate Starts for Mimi\_181:

(Start: 22 @115674 has 11 MA's), (26, 115716), (84, 116055), (99, 116118), (106, 116160), (118, 116214), (128, 116292), (157, 116436), (165, 116463), (166, 116469), (183, 116607),

Gene: MindFlayer\_2 Start: 2261, Stop: 1221, Start Num: 18

Candidate Starts for MindFlayer\_2:

(Start: 18 @2261 has 18 MA's), (Start: 23 @2216 has 85 MA's), (37, 2105), (43, 2072), (51, 2039), (56, 2027), (58, 2018), (70, 1970), (71, 1952), (72, 1949), (94, 1805), (97, 1796), (104, 1754), (111, 1724), (119, 1685), (122, 1667), (124, 1637), (132, 1574), (157, 1442), (168, 1382), (173, 1334), (180, 1277), (189, 1241),

Gene: MindFlayer\_254 Start: 120321, Stop: 119281, Start Num: 18

Candidate Starts for MindFlayer\_254:

(Start: 18 @120321 has 18 MA's), (Start: 23 @120276 has 85 MA's), (37, 120165), (43, 120132), (51, 120099), (56, 120087), (58, 120078), (70, 120030), (71, 120012), (72, 120009), (94, 119865), (97, 119856), (104, 119814), (111, 119784), (119, 119745), (122, 119727), (124, 119697), (132, 119634), (157, 119502), (168, 119442), (173, 119394), (180, 119337), (189, 119301),

Gene: Moab\_220 Start: 109307, Stop: 110329, Start Num: 20

Candidate Starts for Moab\_220:

(Start: 20 @109307 has 8 MA's), (25, 109337), (33, 109379), (37, 109418), (42, 109436), (48, 109478), (53, 109496), (58, 109514), (87, 109694), (90, 109712), (99, 109757), (104, 109790), (105, 109796), (107, 109802), (123, 109892), (132, 109967), (137, 109991), (144, 110021), (155, 110084),

(189, 110303),

Gene: Moleficent\_18 Start: 12566, Stop: 11562, Start Num: 24

Candidate Starts for Moleficent\_18:

(Start: 24 @12566 has 30 MA's), (43, 12437), (67, 12341), (73, 12272), (74, 12263), (83, 12188), (111, 12050), (124, 11957), (134, 11885), (137, 11870), (140, 11855), (143, 11843), (148, 11825), (154, 11780), (174, 11648), (178, 11609), (188, 11567),

Gene: Morrill\_17 Start: 12308, Stop: 11304, Start Num: 24

Candidate Starts for Morrill\_17:

(Start: 24 @12308 has 30 MA's), (43, 12179), (67, 12083), (73, 12014), (74, 12005), (85, 11921), (111, 11792), (124, 11699), (134, 11627), (137, 11612), (140, 11597), (148, 11567), (154, 11522), (174, 11390), (178, 11351), (188, 11309),

Gene: Mugiwara\_274 Start: 123730, Stop: 122585, Start Num: 2

Candidate Starts for Mugiwara\_274:

(2, 123730), (7, 123691), (9, 123676), (12, 123661), (16, 123643), (Start: 23 @123586 has 85 MA's), (37, 123475), (56, 123397), (58, 123388), (70, 123340), (71, 123322), (89, 123196), (92, 123190), (97, 123166), (100, 123154), (104, 123124), (111, 123094), (119, 123055), (122, 123037), (124, 123007), (132, 122944), (157, 122812), (168, 122752), (173, 122704), (180, 122647), (191, 122602),

Gene: Mugiwara\_2 Start: 2345, Stop: 1200, Start Num: 2

Candidate Starts for Mugiwara\_2:

(2, 2345), (7, 2306), (9, 2291), (12, 2276), (16, 2258), (Start: 23 @2201 has 85 MA's), (37, 2090), (56, 2012), (58, 2003), (70, 1955), (71, 1937), (89, 1811), (92, 1805), (97, 1781), (100, 1769), (104, 1739), (111, 1709), (119, 1670), (122, 1652), (124, 1622), (132, 1559), (157, 1427), (168, 1367), (173, 1319), (180, 1262), (191, 1217),

Gene: MulchMansion\_258 Start: 125252, Stop: 124236, Start Num: 23

Candidate Starts for MulchMansion\_258:

(Start: 23 @125252 has 85 MA's), (37, 125141), (46, 125093), (48, 125081), (50, 125075), (57, 125036), (70, 124982), (82, 124871), (94, 124817), (111, 124736), (119, 124697), (122, 124679), (124, 124649), (132, 124586), (151, 124490), (157, 124457), (168, 124397), (173, 124349), (175, 124331), (180, 124292),

Gene: MulchMansion\_2 Start: 2274, Stop: 1258, Start Num: 23

Candidate Starts for MulchMansion\_2:

(Start: 23 @2274 has 85 MA's), (37, 2163), (46, 2115), (48, 2103), (50, 2097), (57, 2058), (70, 2004), (82, 1893), (94, 1839), (111, 1758), (119, 1719), (122, 1701), (124, 1671), (132, 1608), (151, 1512), (157, 1479), (168, 1419), (173, 1371), (175, 1353), (180, 1314),

Gene: Navo\_252 Start: 121839, Stop: 120826, Start Num: 23

Candidate Starts for Navo\_252:

(1, 122061), (3, 121989), (7, 121953), (Start: 11 @121932 has 4 MA's), (14, 121914), (Start: 23 @121839 has 85 MA's), (34, 121758), (37, 121728), (48, 121668), (53, 121638), (57, 121623), (58, 121620), (70, 121572), (82, 121461), (94, 121407), (103, 121362), (111, 121326), (119, 121287), (122, 121269), (124, 121239), (151, 121080), (157, 121047), (168, 120987), (173, 120939), (175, 120921), (180, 120882),

Gene: Navo\_2 Start: 2214, Stop: 1201, Start Num: 23

Candidate Starts for Navo\_2:

(1, 2436), (3, 2364), (7, 2328), (Start: 11 @2307 has 4 MA's), (14, 2289), (Start: 23 @2214 has 85 MA's), (34, 2133), (37, 2103), (48, 2043), (53, 2013), (57, 1998), (58, 1995), (70, 1947), (82, 1836),

(94, 1782), (103, 1737), (111, 1701), (119, 1662), (122, 1644), (124, 1614), (151, 1455), (157, 1422), (168, 1362), (173, 1314), (175, 1296), (180, 1257),

Gene: NiceHouse\_208 Start: 114434, Stop: 115474, Start Num: 23

Candidate Starts for NiceHouse\_208:

(Start: 23 @114434 has 85 MA's), (34, 114512), (35, 114527), (38, 114545), (47, 114599), (48, 114602), (54, 114638), (68, 114719), (72, 114752), (76, 114785), (94, 114896), (98, 114911), (99, 114914), (111, 114977), (113, 114992), (116, 115004), (123, 115049), (143, 115175), (157, 115259), (167, 115316), (172, 115355), (175, 115376), (185, 115439),

Gene: Nicole72\_57 Start: 42240, Stop: 43244, Start Num: 24

Candidate Starts for Nicole72\_57:

(Start: 24 @42240 has 30 MA's), (27, 42270), (30, 42288), (34, 42312), (65, 42456), (74, 42543), (80, 42579), (85, 42630), (96, 42684), (99, 42696), (111, 42759), (114, 42780), (121, 42819), (123, 42840), (134, 42924), (137, 42939), (149, 42999), (152, 43014), (161, 43056), (171, 43137), (176, 43179), (179, 43200), (184, 43224),

Gene: NootNoot\_3 Start: 2427, Stop: 1414, Start Num: 23

Candidate Starts for NootNoot\_3:

(3, 2577), (7, 2541), (Start: 11 @2520 has 4 MA's), (14, 2502), (Start: 23 @2427 has 85 MA's), (34, 2346), (37, 2316), (48, 2256), (53, 2226), (57, 2211), (58, 2208), (70, 2160), (82, 2049), (94, 1995), (103, 1950), (111, 1914), (119, 1875), (122, 1857), (124, 1827), (151, 1668), (157, 1635), (168, 1575), (173, 1527), (175, 1509), (180, 1470),

Gene: NootNoot\_248 Start: 122726, Stop: 121713, Start Num: 23

Candidate Starts for NootNoot\_248:

(3, 122876), (7, 122840), (Start: 11 @122819 has 4 MA's), (14, 122801), (Start: 23 @122726 has 85 MA's), (34, 122645), (37, 122615), (48, 122555), (53, 122525), (57, 122510), (58, 122507), (70, 122459), (82, 122348), (94, 122294), (103, 122249), (111, 122213), (119, 122174), (122, 122156), (124, 122126), (151, 121967), (157, 121934), (168, 121874), (173, 121826), (175, 121808), (180, 121769),

Gene: PacManQ\_253 Start: 123117, Stop: 122104, Start Num: 23

Candidate Starts for PacManQ\_253:

(10, 123213), (Start: 23 @123117 has 85 MA's), (37, 123006), (43, 122973), (48, 122946), (51, 122937), (53, 122916), (57, 122901), (70, 122850), (82, 122739), (94, 122685), (111, 122604), (119, 122565), (122, 122547), (124, 122517), (132, 122454), (150, 122370), (151, 122358), (157, 122325), (168, 122265), (173, 122217), (175, 122199), (180, 122160),

Gene: PacManQ\_2 Start: 2225, Stop: 1212, Start Num: 23

Candidate Starts for PacManQ\_2:

(10, 2321), (Start: 23 @2225 has 85 MA's), (37, 2114), (43, 2081), (48, 2054), (51, 2045), (53, 2024), (57, 2009), (70, 1958), (82, 1847), (94, 1793), (111, 1712), (119, 1673), (122, 1655), (124, 1625), (132, 1562), (150, 1478), (151, 1466), (157, 1433), (168, 1373), (173, 1325), (175, 1307), (180, 1268),

Gene: Paradiddles\_3 Start: 2417, Stop: 1404, Start Num: 23

Candidate Starts for Paradiddles\_3:

(3, 2567), (7, 2531), (Start: 11 @2510 has 4 MA's), (14, 2492), (Start: 23 @2417 has 85 MA's), (34, 2336), (37, 2306), (48, 2246), (53, 2216), (57, 2201), (58, 2198), (70, 2150), (82, 2039), (94, 1985), (103, 1940), (111, 1904), (119, 1865), (122, 1847), (124, 1817), (151, 1658), (157, 1625), (168, 1565), (173, 1517), (175, 1499), (180, 1460),

Gene: Paradiddles\_244 Start: 125125, Stop: 124112, Start Num: 23



Candidate Starts for Paradiddles\_244:

(3, 125275), (7, 125239), (Start: 11 @125218 has 4 MA's), (14, 125200), (Start: 23 @125125 has 85 MA's), (34, 125044), (37, 125014), (48, 124954), (53, 124924), (57, 124909), (58, 124906), (70, 124858), (82, 124747), (94, 124693), (103, 124648), (111, 124612), (119, 124573), (122, 124555), (124, 124525), (151, 124366), (157, 124333), (168, 124273), (173, 124225), (175, 124207), (180, 124168),

Gene: Patbob\_174 Start: 116230, Stop: 117204, Start Num: 22

Candidate Starts for Patbob\_174:

(Start: 22 @116230 has 11 MA's), (26, 116272), (84, 116611), (99, 116674), (106, 116716), (118, 116770), (128, 116848), (129, 116863), (157, 116992), (165, 117019), (166, 117025), (183, 117163),

Gene: Patelgo\_221 Start: 109737, Stop: 110759, Start Num: 20

Candidate Starts for Patelgo\_221:

(Start: 20 @109737 has 8 MA's), (25, 109767), (37, 109848), (42, 109866), (48, 109908), (53, 109926), (58, 109944), (87, 110124), (90, 110142), (99, 110187), (104, 110220), (105, 110226), (107, 110232), (123, 110322), (132, 110397), (137, 110421), (144, 110451), (155, 110514), (189, 110733),

Gene: Peebs\_2 Start: 2371, Stop: 1211, Start Num: 4

Candidate Starts for Peebs\_2:

(Start: 4 @2371 has 4 MA's), (Start: 11 @2317 has 4 MA's), (14, 2299), (Start: 23 @2224 has 85 MA's), (37, 2113), (48, 2053), (51, 2044), (53, 2023), (57, 2008), (70, 1957), (82, 1846), (94, 1792), (111, 1711), (122, 1654), (124, 1624), (132, 1561), (150, 1477), (151, 1465), (157, 1432), (168, 1372), (173, 1324), (175, 1306), (180, 1267),

Gene: Peebs\_249 Start: 124346, Stop: 123186, Start Num: 4

Candidate Starts for Peebs\_249:

(Start: 4 @124346 has 4 MA's), (Start: 11 @124292 has 4 MA's), (14, 124274), (Start: 23 @124199 has 85 MA's), (37, 124088), (48, 124028), (51, 124019), (53, 123998), (57, 123983), (70, 123932), (82, 123821), (94, 123767), (111, 123686), (122, 123629), (124, 123599), (132, 123536), (150, 123452), (151, 123440), (157, 123407), (168, 123347), (173, 123299), (175, 123281), (180, 123242),

Gene: Pepperwood\_252 Start: 124164, Stop: 123151, Start Num: 23

Candidate Starts for Pepperwood\_252:

(Start: 4 @124311 has 4 MA's), (Start: 11 @124257 has 4 MA's), (14, 124239), (Start: 23 @124164 has 85 MA's), (37, 124053), (48, 123993), (51, 123984), (53, 123963), (57, 123948), (70, 123897), (82, 123786), (94, 123732), (111, 123651), (119, 123612), (122, 123594), (124, 123564), (132, 123501), (150, 123417), (151, 123405), (157, 123372), (168, 123312), (173, 123264), (175, 123246), (180, 123207),

Gene: Pepperwood\_3 Start: 2379, Stop: 1366, Start Num: 23

Candidate Starts for Pepperwood\_3:

(Start: 4 @2526 has 4 MA's), (Start: 11 @2472 has 4 MA's), (14, 2454), (Start: 23 @2379 has 85 MA's), (37, 2268), (48, 2208), (51, 2199), (53, 2178), (57, 2163), (70, 2112), (82, 2001), (94, 1947), (111, 1866), (119, 1827), (122, 1809), (124, 1779), (132, 1716), (150, 1632), (151, 1620), (157, 1587), (168, 1527), (173, 1479), (175, 1461), (180, 1422),

Gene: Peregrin\_181 Start: 95378, Stop: 96424, Start Num: 21

Candidate Starts for Peregrin\_181:

(Start: 21 @95378 has 4 MA's), (27, 95417), (33, 95450), (38, 95495), (39, 95501), (45, 95531), (54, 95588), (73, 95726), (84, 95807), (86, 95813), (88, 95819), (93, 95852), (98, 95876), (116, 95969), (123, 96014), (124, 96026), (134, 96098), (155, 96203), (157, 96215), (169, 96293), (185, 96389), (191, 96410),

Gene: Persimmon\_253 Start: 123026, Stop: 122013, Start Num: 23

Candidate Starts for Persimmon\_253:

(3, 123176), (7, 123140), (Start: 11 @123119 has 4 MA's), (14, 123101), (Start: 23 @123026 has 85 MA's), (34, 122945), (37, 122915), (48, 122855), (53, 122825), (57, 122810), (58, 122807), (70, 122759), (82, 122648), (94, 122594), (103, 122549), (111, 122513), (119, 122474), (122, 122456), (124, 122426), (151, 122267), (157, 122234), (168, 122174), (173, 122126), (175, 122108), (180, 122069),

Gene: Persimmon\_2 Start: 2215, Stop: 1202, Start Num: 23

Candidate Starts for Persimmon\_2:

(3, 2365), (7, 2329), (Start: 11 @2308 has 4 MA's), (14, 2290), (Start: 23 @2215 has 85 MA's), (34, 2134), (37, 2104), (48, 2044), (53, 2014), (57, 1999), (58, 1996), (70, 1948), (82, 1837), (94, 1783), (103, 1738), (111, 1702), (119, 1663), (122, 1645), (124, 1615), (151, 1456), (157, 1423), (168, 1363), (173, 1315), (175, 1297), (180, 1258),

Gene: Pharky\_18 Start: 12530, Stop: 11526, Start Num: 24

Candidate Starts for Pharky\_18:

(Start: 24 @12530 has 30 MA's), (43, 12401), (67, 12305), (73, 12236), (74, 12227), (83, 12152), (111, 12014), (124, 11921), (134, 11849), (137, 11834), (140, 11819), (143, 11807), (148, 11789), (154, 11744), (174, 11612), (178, 11573), (188, 11531),

Gene: Phedro\_18 Start: 12530, Stop: 11526, Start Num: 24

Candidate Starts for Phedro\_18:

(Start: 24 @12530 has 30 MA's), (43, 12401), (67, 12305), (73, 12236), (74, 12227), (83, 12152), (111, 12014), (124, 11921), (134, 11849), (137, 11834), (140, 11819), (143, 11807), (148, 11789), (154, 11744), (174, 11612), (178, 11573), (188, 11531),

Gene: Phracted\_18 Start: 12530, Stop: 11526, Start Num: 24

Candidate Starts for Phracted\_18:

(Start: 24 @12530 has 30 MA's), (43, 12401), (67, 12305), (73, 12236), (74, 12227), (83, 12152), (111, 12014), (124, 11921), (134, 11849), (137, 11834), (140, 11819), (143, 11807), (148, 11789), (154, 11744), (174, 11612), (178, 11573), (188, 11531),

Gene: Phredrick\_223 Start: 106600, Stop: 107622, Start Num: 22

Candidate Starts for Phredrick\_223:

(Start: 22 @106600 has 11 MA's), (25, 106630), (37, 106711), (42, 106729), (48, 106771), (58, 106807), (87, 106987), (99, 107050), (104, 107083), (107, 107095), (108, 107098), (110, 107110), (113, 107128), (123, 107185), (132, 107260), (137, 107284), (144, 107314), (155, 107377), (189, 107599), (192, 107614),

Gene: PhriedRice\_18 Start: 12541, Stop: 11537, Start Num: 24

Candidate Starts for PhriedRice\_18:

(Start: 24 @12541 has 30 MA's), (43, 12412), (67, 12316), (73, 12247), (74, 12238), (83, 12163), (111, 12025), (124, 11932), (134, 11860), (137, 11845), (140, 11830), (143, 11818), (148, 11800), (154, 11755), (174, 11623), (178, 11584), (188, 11542),

Gene: PinkiePie\_3 Start: 2417, Stop: 1404, Start Num: 23

Candidate Starts for PinkiePie\_3:

(3, 2567), (7, 2531), (Start: 11 @2510 has 4 MA's), (14, 2492), (Start: 23 @2417 has 85 MA's), (34, 2336), (37, 2306), (48, 2246), (53, 2216), (57, 2201), (58, 2198), (70, 2150), (82, 2039), (94, 1985), (103, 1940), (111, 1904), (119, 1865), (122, 1847), (124, 1817), (151, 1658), (157, 1625), (168, 1565), (173, 1517), (175, 1499), (180, 1460),

Gene: PinkiePie\_253 Start: 123938, Stop: 122925, Start Num: 23

Candidate Starts for PinkiePie\_253:

(3, 124088), (7, 124052), (Start: 11 @124031 has 4 MA's), (14, 124013), (Start: 23 @123938 has 85 MA's), (34, 123857), (37, 123827), (48, 123767), (53, 123737), (57, 123722), (58, 123719), (70, 123671), (82, 123560), (94, 123506), (103, 123461), (111, 123425), (119, 123386), (122, 123368), (124, 123338), (151, 123179), (157, 123146), (168, 123086), (173, 123038), (175, 123020), (180, 122981),

Gene: PumpkinSpice\_3 Start: 2651, Stop: 1611, Start Num: 18

Candidate Starts for PumpkinSpice\_3:

(Start: 18 @2651 has 18 MA's), (Start: 23 @2606 has 85 MA's), (37, 2495), (43, 2462), (51, 2429), (56, 2417), (58, 2408), (70, 2360), (71, 2342), (72, 2339), (94, 2195), (97, 2186), (104, 2144), (111, 2114), (119, 2075), (122, 2057), (124, 2027), (132, 1964), (157, 1832), (168, 1772), (173, 1724), (180, 1667), (189, 1631),

Gene: PumpkinSpice\_267 Start: 122543, Stop: 121503, Start Num: 18

Candidate Starts for PumpkinSpice\_267:

(Start: 18 @122543 has 18 MA's), (Start: 23 @122498 has 85 MA's), (37, 122387), (43, 122354), (51, 122321), (56, 122309), (58, 122300), (70, 122252), (71, 122234), (72, 122231), (94, 122087), (97, 122078), (104, 122036), (111, 122006), (119, 121967), (122, 121949), (124, 121919), (132, 121856), (157, 121724), (168, 121664), (173, 121616), (180, 121559), (189, 121523),

Gene: Quaran19\_264 Start: 121833, Stop: 120793, Start Num: 18

Candidate Starts for Quaran19\_264:

(Start: 18 @121833 has 18 MA's), (Start: 23 @121788 has 85 MA's), (37, 121677), (43, 121644), (51, 121611), (56, 121599), (58, 121590), (70, 121542), (71, 121524), (72, 121521), (94, 121377), (97, 121368), (104, 121326), (111, 121296), (119, 121257), (122, 121239), (124, 121209), (132, 121146), (157, 121014), (168, 120954), (173, 120906), (180, 120849), (189, 120813),

Gene: Quaran19\_3 Start: 2651, Stop: 1611, Start Num: 18

Candidate Starts for Quaran19\_3:

(Start: 18 @2651 has 18 MA's), (Start: 23 @2606 has 85 MA's), (37, 2495), (43, 2462), (51, 2429), (56, 2417), (58, 2408), (70, 2360), (71, 2342), (72, 2339), (94, 2195), (97, 2186), (104, 2144), (111, 2114), (119, 2075), (122, 2057), (124, 2027), (132, 1964), (157, 1832), (168, 1772), (173, 1724), (180, 1667), (189, 1631),

Gene: Racecar\_176 Start: 116640, Stop: 117614, Start Num: 22

Candidate Starts for Racecar\_176:

(Start: 22 @116640 has 11 MA's), (26, 116682), (84, 117021), (99, 117084), (106, 117126), (118, 117180), (128, 117258), (157, 117402), (165, 117429), (166, 117435), (183, 117573),

Gene: Rasputia\_140 Start: 86821, Stop: 87828, Start Num: 24

Candidate Starts for Rasputia\_140:

(5, 86671), (6, 86674), (Start: 24 @86821 has 30 MA's), (27, 86851), (39, 86932), (41, 86938), (70, 87082), (81, 87163), (90, 87235), (111, 87340), (114, 87361), (133, 87502), (135, 87508), (148, 87565), (160, 87631), (179, 87781),

Gene: RicoCaldo\_18 Start: 12562, Stop: 11558, Start Num: 24

Candidate Starts for RicoCaldo\_18:

(Start: 24 @12562 has 30 MA's), (43, 12433), (67, 12337), (73, 12268), (74, 12259), (83, 12184), (111, 12046), (124, 11953), (134, 11881), (137, 11866), (140, 11851), (143, 11839), (148, 11821), (154, 11776), (174, 11644), (178, 11605), (188, 11563),

Gene: SaltySpittoon\_3 Start: 2606, Stop: 1611, Start Num: 23

Candidate Starts for SaltySpittoon\_3:

(Start: 18 @2651 has 18 MA's), (Start: 23 @2606 has 85 MA's), (37, 2495), (43, 2462), (51, 2429), (56, 2417), (58, 2408), (70, 2360), (71, 2342), (72, 2339), (94, 2195), (97, 2186), (104, 2144), (111, 2114), (119, 2075), (122, 2057), (124, 2027), (132, 1964), (157, 1832), (168, 1772), (173, 1724), (180, 1667), (189, 1631),

Gene: SaltySpittoon\_263 Start: 120870, Stop: 119875, Start Num: 23

Candidate Starts for SaltySpittoon\_263:

(Start: 18 @120915 has 18 MA's), (Start: 23 @120870 has 85 MA's), (37, 120759), (43, 120726), (51, 120693), (56, 120681), (58, 120672), (70, 120624), (71, 120606), (72, 120603), (94, 120459), (97, 120450), (104, 120408), (111, 120378), (119, 120339), (122, 120321), (124, 120291), (132, 120228), (157, 120096), (168, 120036), (173, 119988), (180, 119931), (189, 119895),

Gene: Samisti12\_253 Start: 125267, Stop: 124254, Start Num: 23

Candidate Starts for Samisti12\_253:

(Start: 23 @125267 has 85 MA's), (37, 125156), (48, 125096), (51, 125087), (53, 125066), (57, 125051), (70, 125000), (82, 124889), (94, 124835), (111, 124754), (119, 124715), (122, 124697), (124, 124667), (132, 124604), (150, 124520), (151, 124508), (157, 124475), (168, 124415), (173, 124367), (175, 124349), (180, 124310),

Gene: Samisti12\_2 Start: 2223, Stop: 1210, Start Num: 23

Candidate Starts for Samisti12\_2:

(Start: 23 @2223 has 85 MA's), (37, 2112), (48, 2052), (51, 2043), (53, 2022), (57, 2007), (70, 1956), (82, 1845), (94, 1791), (111, 1710), (119, 1671), (122, 1653), (124, 1623), (132, 1560), (150, 1476), (151, 1464), (157, 1431), (168, 1371), (173, 1323), (175, 1305), (180, 1266),

Gene: SeresaTree\_219 Start: 108748, Stop: 109758, Start Num: 22

Candidate Starts for SeresaTree\_219:

(Start: 22 @108748 has 11 MA's), (25, 108778), (34, 108829), (37, 108859), (45, 108898), (64, 108967), (113, 109264), (126, 109348), (132, 109396), (137, 109420), (138, 109426), (153, 109504), (160, 109531), (178, 109690), (185, 109723), (186, 109726), (190, 109738),

Gene: Sham\_210 Start: 109632, Stop: 110651, Start Num: 22

Candidate Starts for Sham\_210:

(Start: 22 @109632 has 11 MA's), (25, 109662), (37, 109749), (45, 109788), (55, 109827), (64, 109860), (99, 110079), (108, 110127), (114, 110163), (116, 110169), (132, 110289), (137, 110313), (138, 110319), (139, 110322), (157, 110418), (164, 110448), (177, 110577), (185, 110616), (186, 110619), (190, 110631),

Gene: Sollertia\_260 Start: 121518, Stop: 120517, Start Num: 23

Candidate Starts for Sollertia\_260:

(15, 121584), (16, 121575), (Start: 23 @121518 has 85 MA's), (37, 121407), (58, 121320), (89, 121128), (94, 121107), (97, 121098), (104, 121056), (111, 121026), (119, 120987), (122, 120969), (124, 120939), (132, 120876), (157, 120744), (168, 120684), (173, 120636), (175, 120618), (180, 120579),

Gene: Sollertia\_4 Start: 2628, Stop: 1627, Start Num: 23

Candidate Starts for Sollertia\_4:

(15, 2694), (16, 2685), (Start: 23 @2628 has 85 MA's), (37, 2517), (58, 2430), (89, 2238), (94, 2217), (97, 2208), (104, 2166), (111, 2136), (119, 2097), (122, 2079), (124, 2049), (132, 1986), (157, 1854), (168, 1794), (173, 1746), (175, 1728), (180, 1689),

Gene: SparkleGoddess\_218 Start: 108469, Stop: 109491, Start Num: 20

Candidate Starts for SparkleGoddess\_218:

(Start: 20 @108469 has 8 MA's), (25, 108499), (37, 108580), (42, 108598), (48, 108640), (53, 108658), (58, 108676), (87, 108856), (99, 108919), (104, 108952), (107, 108964), (108, 108967), (110, 108979), (123, 109054), (132, 109129), (137, 109153), (144, 109183), (155, 109246), (189, 109465),

Gene: Spelly\_269 Start: 121455, Stop: 120415, Start Num: 18

Candidate Starts for Spelly\_269:

(Start: 18 @121455 has 18 MA's), (Start: 23 @121410 has 85 MA's), (37, 121299), (43, 121266), (51, 121233), (56, 121221), (58, 121212), (70, 121164), (71, 121146), (72, 121143), (94, 120999), (97, 120990), (104, 120948), (111, 120918), (119, 120879), (122, 120861), (124, 120831), (132, 120768), (157, 120636), (168, 120576), (173, 120528), (180, 120471), (189, 120435),

Gene: Spelly\_3 Start: 2651, Stop: 1611, Start Num: 18

Candidate Starts for Spelly\_3:

(Start: 18 @2651 has 18 MA's), (Start: 23 @2606 has 85 MA's), (37, 2495), (43, 2462), (51, 2429), (56, 2417), (58, 2408), (70, 2360), (71, 2342), (72, 2339), (94, 2195), (97, 2186), (104, 2144), (111, 2114), (119, 2075), (122, 2057), (124, 2027), (132, 1964), (157, 1832), (168, 1772), (173, 1724), (180, 1667), (189, 1631),

Gene: Spilled\_2 Start: 2261, Stop: 1221, Start Num: 18

Candidate Starts for Spilled\_2:

(Start: 18 @2261 has 18 MA's), (Start: 23 @2216 has 85 MA's), (37, 2105), (43, 2072), (51, 2039), (56, 2027), (58, 2018), (70, 1970), (71, 1952), (72, 1949), (94, 1805), (97, 1796), (104, 1754), (111, 1724), (119, 1685), (122, 1667), (124, 1637), (132, 1574), (157, 1442), (168, 1382), (173, 1334), (180, 1277), (189, 1241),

Gene: Spilled\_270 Start: 122730, Stop: 121690, Start Num: 18

Candidate Starts for Spilled\_270:

(Start: 18 @122730 has 18 MA's), (Start: 23 @122685 has 85 MA's), (37, 122574), (43, 122541), (51, 122508), (56, 122496), (58, 122487), (70, 122439), (71, 122421), (72, 122418), (94, 122274), (97, 122265), (104, 122223), (111, 122193), (119, 122154), (122, 122136), (124, 122106), (132, 122043), (157, 121911), (168, 121851), (173, 121803), (180, 121746), (189, 121710),

Gene: Squillium\_3 Start: 2417, Stop: 1404, Start Num: 23

Candidate Starts for Squillium\_3:

(3, 2567), (7, 2531), (Start: 11 @2510 has 4 MA's), (14, 2492), (Start: 23 @2417 has 85 MA's), (34, 2336), (37, 2306), (48, 2246), (53, 2216), (57, 2201), (58, 2198), (70, 2150), (82, 2039), (94, 1985), (103, 1940), (111, 1904), (119, 1865), (122, 1847), (124, 1817), (151, 1658), (157, 1625), (168, 1565), (173, 1517), (175, 1499), (180, 1460),

Gene: Squillium\_255 Start: 123941, Stop: 122928, Start Num: 23

Candidate Starts for Squillium\_255:

(3, 124091), (7, 124055), (Start: 11 @124034 has 4 MA's), (14, 124016), (Start: 23 @123941 has 85 MA's), (34, 123860), (37, 123830), (48, 123770), (53, 123740), (57, 123725), (58, 123722), (70, 123674), (82, 123563), (94, 123509), (103, 123464), (111, 123428), (119, 123389), (122, 123371), (124, 123341), (151, 123182), (157, 123149), (168, 123089), (173, 123041), (175, 123023), (180, 122984),

Gene: StagePhright\_18 Start: 12530, Stop: 11526, Start Num: 24

Candidate Starts for StagePhright\_18:

(Start: 24 @12530 has 30 MA's), (43, 12401), (67, 12305), (73, 12236), (74, 12227), (83, 12152), (111, 12014), (124, 11921), (134, 11849), (137, 11834), (140, 11819), (143, 11807), (148, 11789), (154, 11744), (174, 11612), (178, 11573), (188, 11531),

Gene: Stanimal\_259 Start: 121902, Stop: 120901, Start Num: 23

Candidate Starts for Stanimal\_259:

(15, 121968), (16, 121959), (Start: 23 @121902 has 85 MA's), (37, 121791), (58, 121704), (89, 121512), (94, 121491), (97, 121482), (104, 121440), (111, 121410), (119, 121371), (122, 121353), (124, 121323), (132, 121260), (157, 121128), (168, 121068), (173, 121020), (175, 121002), (180, 120963),

Gene: Stanimal\_4 Start: 2628, Stop: 1627, Start Num: 23

Candidate Starts for Stanimal\_4:

(15, 2694), (16, 2685), (Start: 23 @2628 has 85 MA's), (37, 2517), (58, 2430), (89, 2238), (94, 2217), (97, 2208), (104, 2166), (111, 2136), (119, 2097), (122, 2079), (124, 2049), (132, 1986), (157, 1854), (168, 1794), (173, 1746), (175, 1728), (180, 1689),

Gene: StarPlatinum\_2 Start: 2355, Stop: 1354, Start Num: 23

Candidate Starts for StarPlatinum\_2:

(2, 2499), (7, 2460), (9, 2445), (12, 2430), (16, 2412), (Start: 23 @2355 has 85 MA's), (37, 2244), (58, 2157), (89, 1965), (92, 1959), (97, 1935), (100, 1923), (104, 1893), (111, 1863), (119, 1824), (122, 1806), (124, 1776), (132, 1713), (136, 1695), (142, 1665), (157, 1581), (168, 1521), (173, 1473), (175, 1455),

Gene: StarPlatinum\_272 Start: 124042, Stop: 123041, Start Num: 23

Candidate Starts for StarPlatinum\_272:

(2, 124186), (7, 124147), (9, 124132), (12, 124117), (16, 124099), (Start: 23 @124042 has 85 MA's), (37, 123931), (58, 123844), (89, 123652), (92, 123646), (97, 123622), (100, 123610), (104, 123580), (111, 123550), (119, 123511), (122, 123493), (124, 123463), (132, 123400), (136, 123382), (142, 123352), (157, 123268), (168, 123208), (173, 123160), (175, 123142),

Gene: Starbow\_3 Start: 2606, Stop: 1611, Start Num: 23

Candidate Starts for Starbow\_3:

(Start: 18 @2651 has 18 MA's), (Start: 23 @2606 has 85 MA's), (37, 2495), (43, 2462), (51, 2429), (56, 2417), (58, 2408), (70, 2360), (71, 2342), (72, 2339), (94, 2195), (97, 2186), (104, 2144), (111, 2114), (119, 2075), (122, 2057), (124, 2027), (132, 1964), (157, 1832), (168, 1772), (173, 1724), (180, 1667), (189, 1631),

Gene: Starbow\_260 Start: 121454, Stop: 120459, Start Num: 23

Candidate Starts for Starbow\_260:

(Start: 18 @121499 has 18 MA's), (Start: 23 @121454 has 85 MA's), (37, 121343), (43, 121310), (51, 121277), (56, 121265), (58, 121256), (70, 121208), (71, 121190), (72, 121187), (94, 121043), (97, 121034), (104, 120992), (111, 120962), (119, 120923), (122, 120905), (124, 120875), (132, 120812), (157, 120680), (168, 120620), (173, 120572), (180, 120515), (189, 120479),

Gene: Stigma\_217 Start: 108675, Stop: 109697, Start Num: 20

Candidate Starts for Stigma\_217:

(Start: 20 @108675 has 8 MA's), (25, 108705), (37, 108786), (42, 108804), (48, 108846), (53, 108864), (58, 108882), (87, 109062), (99, 109125), (104, 109158), (107, 109170), (108, 109173), (110, 109185), (123, 109260), (132, 109335), (137, 109359), (144, 109389), (155, 109452), (189, 109671),

Gene: Sushi23\_253 Start: 125067, Stop: 124054, Start Num: 23

Candidate Starts for Sushi23\_253:

(Start: 23 @125067 has 85 MA's), (37, 124956), (48, 124896), (51, 124887), (53, 124866), (57, 124851), (70, 124800), (82, 124689), (94, 124635), (111, 124554), (119, 124515), (122, 124497), (124, 124467), (132, 124404), (150, 124320), (151, 124308), (157, 124275), (168, 124215), (173, 124167), (175, 124149), (180, 124110),

Gene: Sushi23\_2 Start: 2224, Stop: 1211, Start Num: 23

Candidate Starts for Sushi23\_2:

(Start: 23 @2224 has 85 MA's), (37, 2113), (48, 2053), (51, 2044), (53, 2023), (57, 2008), (70, 1957), (82, 1846), (94, 1792), (111, 1711), (119, 1672), (122, 1654), (124, 1624), (132, 1561), (150, 1477), (151, 1465), (157, 1432), (168, 1372), (173, 1324), (175, 1306), (180, 1267),

Gene: Talia1610\_178 Start: 116051, Stop: 117025, Start Num: 22

Candidate Starts for Talia1610\_178:

(Start: 22 @116051 has 11 MA's), (26, 116093), (84, 116432), (99, 116495), (106, 116537), (118, 116591), (128, 116669), (157, 116813), (165, 116840), (166, 116846), (183, 116984),

Gene: Targaryen\_2 Start: 2329, Stop: 1316, Start Num: 23

Candidate Starts for Targaryen\_2:

(Start: 4 @2467 has 4 MA's), (Start: 11 @2422 has 4 MA's), (14, 2404), (19, 2341), (Start: 23 @2329 has 85 MA's), (34, 2248), (37, 2218), (43, 2185), (50, 2152), (53, 2128), (57, 2113), (70, 2062), (94, 1897), (111, 1816), (119, 1777), (122, 1759), (124, 1729), (132, 1666), (136, 1648), (151, 1570), (157, 1537), (173, 1429), (175, 1411), (180, 1372),

Gene: Targaryen\_253 Start: 126005, Stop: 124992, Start Num: 23

Candidate Starts for Targaryen\_253:

(Start: 4 @126143 has 4 MA's), (Start: 11 @126098 has 4 MA's), (14, 126080), (19, 126017), (Start: 23 @126005 has 85 MA's), (34, 125924), (37, 125894), (43, 125861), (50, 125828), (53, 125804), (57, 125789), (70, 125738), (94, 125573), (111, 125492), (119, 125453), (122, 125435), (124, 125405), (132, 125342), (136, 125324), (151, 125246), (157, 125213), (173, 125105), (175, 125087), (180, 125048),

Gene: Terij\_55 Start: 37200, Stop: 38201, Start Num: 24

Candidate Starts for Terij\_55:

(Start: 24 @37200 has 30 MA's), (30, 37248), (40, 37314), (65, 37416), (72, 37479), (73, 37494), (79, 37530), (80, 37536), (81, 37539), (85, 37587), (109, 37707), (117, 37746), (131, 37869), (134, 37881), (137, 37896), (149, 37956), (152, 37971), (163, 38025), (176, 38136),

Gene: Teutsch\_2 Start: 2225, Stop: 1212, Start Num: 23

Candidate Starts for Teutsch\_2:

(Start: 23 @2225 has 85 MA's), (37, 2114), (48, 2054), (51, 2045), (53, 2024), (57, 2009), (70, 1958), (82, 1847), (94, 1793), (111, 1712), (119, 1673), (122, 1655), (124, 1625), (132, 1562), (150, 1478), (151, 1466), (157, 1433), (168, 1373), (173, 1325), (175, 1307), (180, 1268),

Gene: Teutsch\_249 Start: 124434, Stop: 123421, Start Num: 23

Candidate Starts for Teutsch\_249:

(Start: 23 @124434 has 85 MA's), (37, 124323), (48, 124263), (51, 124254), (53, 124233), (57, 124218), (70, 124167), (82, 124056), (94, 124002), (111, 123921), (119, 123882), (122, 123864), (124, 123834), (132, 123771), (150, 123687), (151, 123675), (157, 123642), (168, 123582), (173, 123534), (175, 123516), (180, 123477),

Gene: ThirteenKH\_17 Start: 12307, Stop: 11303, Start Num: 24

Candidate Starts for ThirteenKH\_17:

(Start: 24 @12307 has 30 MA's), (43, 12178), (67, 12082), (73, 12013), (74, 12004), (85, 11920), (111, 11791), (124, 11698), (134, 11626), (140, 11596), (143, 11584), (148, 11566), (154, 11521), (174, 11389), (178, 11350), (188, 11308),

Gene: TomSawyer\_2 Start: 2200, Stop: 1199, Start Num: 23

Candidate Starts for TomSawyer\_2:

(Start: 18 @2245 has 18 MA's), (Start: 23 @2200 has 85 MA's), (37, 2089), (43, 2056), (51, 2023), (56, 2011), (58, 2002), (70, 1954), (71, 1936), (72, 1933), (94, 1789), (97, 1780), (104, 1738), (111, 1708), (119, 1669), (122, 1651), (124, 1621), (132, 1558), (157, 1426), (168, 1366), (173, 1318), (180, 1261), (191, 1216),

Gene: TomSawyer\_267 Start: 123979, Stop: 122978, Start Num: 23

Candidate Starts for TomSawyer\_267:

(Start: 18 @124024 has 18 MA's), (Start: 23 @123979 has 85 MA's), (37, 123868), (43, 123835), (51, 123802), (56, 123790), (58, 123781), (70, 123733), (71, 123715), (72, 123712), (94, 123568), (97, 123559), (104, 123517), (111, 123487), (119, 123448), (122, 123430), (124, 123400), (132, 123337), (157, 123205), (168, 123145), (173, 123097), (180, 123040), (191, 122995),

Gene: Tomas\_3 Start: 2619, Stop: 1627, Start Num: 23

Candidate Starts for Tomas\_3:

(16, 2676), (Start: 23 @2619 has 85 MA's), (32, 2550), (34, 2538), (37, 2508), (39, 2499), (56, 2430), (59, 2418), (70, 2373), (111, 2127), (119, 2088), (122, 2070), (124, 2040), (132, 1977), (151, 1881), (157, 1848), (168, 1788), (173, 1740), (181, 1680), (189, 1647),

Gene: Tomas\_258 Start: 124326, Stop: 123334, Start Num: 23

Candidate Starts for Tomas\_258:

(16, 124383), (Start: 23 @124326 has 85 MA's), (32, 124257), (34, 124245), (37, 124215), (39, 124206), (56, 124137), (59, 124125), (70, 124080), (111, 123834), (119, 123795), (122, 123777), (124, 123747), (132, 123684), (151, 123588), (157, 123555), (168, 123495), (173, 123447), (181, 123387), (189, 123354),

Gene: Tribute\_248 Start: 124769, Stop: 123756, Start Num: 23

Candidate Starts for Tribute\_248:

(Start: 23 @124769 has 85 MA's), (37, 124658), (48, 124598), (51, 124589), (53, 124568), (57, 124553), (70, 124502), (82, 124391), (94, 124337), (111, 124256), (119, 124217), (122, 124199), (124, 124169), (132, 124106), (150, 124022), (151, 124010), (157, 123977), (168, 123917), (173, 123869), (175, 123851), (180, 123812),

Gene: Tribute\_2 Start: 2225, Stop: 1212, Start Num: 23

Candidate Starts for Tribute\_2:

(Start: 23 @2225 has 85 MA's), (37, 2114), (48, 2054), (51, 2045), (53, 2024), (57, 2009), (70, 1958), (82, 1847), (94, 1793), (111, 1712), (119, 1673), (122, 1655), (124, 1625), (132, 1562), (150, 1478), (151, 1466), (157, 1433), (168, 1373), (173, 1325), (175, 1307), (180, 1268),

Gene: Trina\_210 Start: 112849, Stop: 113895, Start Num: 21

Candidate Starts for Trina\_210:

(Start: 21 @112849 has 4 MA's), (36, 112954), (37, 112960), (42, 112978), (46, 113008), (47, 113017), (48, 113020), (52, 113044), (60, 113092), (76, 113215), (84, 113275), (95, 113332), (99, 113347), (113, 113425), (116, 113437), (119, 113446), (123, 113482), (124, 113494), (125, 113500), (127, 113515), (128, 113521), (157, 113683), (176, 113806), (188, 113866),

Gene: TrippleS\_17 Start: 12314, Stop: 11310, Start Num: 24

Candidate Starts for TrippleS\_17:



(Start: 24 @12314 has 30 MA's), (43, 12185), (67, 12089), (73, 12020), (74, 12011), (83, 11936), (111, 11798), (124, 11705), (134, 11633), (137, 11618), (140, 11603), (143, 11591), (148, 11573), (154, 11528), (174, 11396), (178, 11357), (188, 11315),

Gene: Truong\_17 Start: 12296, Stop: 11307, Start Num: 24

Candidate Starts for Truong\_17:

(Start: 24 @12296 has 30 MA's), (40, 12182), (43, 12167), (69, 12053), (73, 12014), (74, 12005), (85, 11921), (111, 11792), (124, 11699), (137, 11612), (162, 11492), (171, 11414), (176, 11372), (178, 11354), (184, 11327),

Gene: TunaTartare\_218 Start: 111927, Stop: 112946, Start Num: 22

Candidate Starts for TunaTartare\_218:

(Start: 22 @111927 has 11 MA's), (25, 111957), (37, 112044), (45, 112083), (55, 112122), (64, 112155), (99, 112374), (108, 112422), (114, 112458), (116, 112464), (132, 112584), (137, 112608), (138, 112614), (139, 112617), (157, 112713), (164, 112743), (177, 112872), (185, 112911), (186, 112914), (190, 112926),

Gene: Warpy\_257 Start: 124267, Stop: 123161, Start Num: 11

Candidate Starts for Warpy\_257:

(Start: 11 @124267 has 4 MA's), (14, 124249), (19, 124186), (Start: 23 @124174 has 85 MA's), (34, 124093), (37, 124063), (43, 124030), (50, 123997), (53, 123973), (57, 123958), (70, 123907), (94, 123742), (111, 123661), (119, 123622), (122, 123604), (124, 123574), (132, 123511), (136, 123493), (151, 123415), (157, 123382), (173, 123274), (175, 123256), (180, 123217),

Gene: Warpy\_5 Start: 2729, Stop: 1623, Start Num: 11

Candidate Starts for Warpy\_5:

(Start: 11 @2729 has 4 MA's), (14, 2711), (19, 2648), (Start: 23 @2636 has 85 MA's), (34, 2555), (37, 2525), (43, 2492), (50, 2459), (53, 2435), (57, 2420), (70, 2369), (94, 2204), (111, 2123), (119, 2084), (122, 2066), (124, 2036), (132, 1973), (136, 1955), (151, 1877), (157, 1844), (173, 1736), (175, 1718), (180, 1679),

Gene: Waterlily\_17 Start: 12338, Stop: 11307, Start Num: 24

Candidate Starts for Waterlily\_17:

(Start: 24 @12338 has 30 MA's), (40, 12224), (43, 12209), (69, 12053), (73, 12014), (74, 12005), (85, 11921), (111, 11792), (124, 11699), (137, 11612), (162, 11492), (171, 11414), (176, 11372), (178, 11354), (184, 11327),

Gene: Watermoore\_2 Start: 2226, Stop: 1213, Start Num: 23

Candidate Starts for Watermoore\_2:

(Start: 4 @2373 has 4 MA's), (Start: 11 @2319 has 4 MA's), (14, 2301), (Start: 23 @2226 has 85 MA's), (37, 2115), (43, 2082), (48, 2055), (51, 2046), (53, 2025), (57, 2010), (70, 1959), (82, 1848), (94, 1794), (111, 1713), (119, 1674), (122, 1656), (124, 1626), (132, 1563), (150, 1479), (151, 1467), (157, 1434), (168, 1374), (173, 1326), (175, 1308), (180, 1269),

Gene: Watermoore\_249 Start: 124822, Stop: 123809, Start Num: 23

Candidate Starts for Watermoore\_249:

(Start: 4 @124969 has 4 MA's), (Start: 11 @124915 has 4 MA's), (14, 124897), (Start: 23 @124822 has 85 MA's), (37, 124711), (43, 124678), (48, 124651), (51, 124642), (53, 124621), (57, 124606), (70, 124555), (82, 124444), (94, 124390), (111, 124309), (119, 124270), (122, 124252), (124, 124222), (132, 124159), (150, 124075), (151, 124063), (157, 124030), (168, 123970), (173, 123922), (175, 123904), (180, 123865),

Gene: Weasels2\_189 Start: 100516, Stop: 101544, Start Num: 21

Candidate Starts for Weasels2\_189:

(12, 100435), (Start: 21 @100516 has 4 MA's), (27, 100555), (29, 100570), (34, 100600), (38, 100633), (48, 100690), (63, 100762), (84, 100918), (86, 100924), (99, 100990), (107, 101035), (120, 101101), (123, 101125), (124, 101137), (125, 101143), (155, 101320), (189, 101521), (191, 101530),

Gene: WhereRU\_259 Start: 123360, Stop: 122347, Start Num: 23

Candidate Starts for WhereRU\_259:

(3, 123510), (7, 123474), (Start: 11 @123453 has 4 MA's), (14, 123435), (Start: 23 @123360 has 85 MA's), (34, 123279), (37, 123249), (48, 123189), (53, 123159), (57, 123144), (58, 123141), (70, 123093), (82, 122982), (94, 122928), (103, 122883), (111, 122847), (119, 122808), (122, 122790), (124, 122760), (151, 122601), (157, 122568), (168, 122508), (173, 122460), (175, 122442), (180, 122403),

Gene: WhereRU\_3 Start: 2215, Stop: 1202, Start Num: 23

Candidate Starts for WhereRU\_3:

(3, 2365), (7, 2329), (Start: 11 @2308 has 4 MA's), (14, 2290), (Start: 23 @2215 has 85 MA's), (34, 2134), (37, 2104), (48, 2044), (53, 2014), (57, 1999), (58, 1996), (70, 1948), (82, 1837), (94, 1783), (103, 1738), (111, 1702), (119, 1663), (122, 1645), (124, 1615), (151, 1456), (157, 1423), (168, 1363), (173, 1315), (175, 1297), (180, 1258),

Gene: Wipeout\_255 Start: 122997, Stop: 121951, Start Num: 18

Candidate Starts for Wipeout\_255:

(Start: 18 @122997 has 18 MA's), (Start: 23 @122952 has 85 MA's), (37, 122841), (43, 122808), (51, 122775), (56, 122763), (58, 122754), (70, 122706), (71, 122688), (72, 122685), (94, 122541), (97, 122532), (104, 122490), (111, 122460), (119, 122421), (122, 122403), (124, 122373), (132, 122310), (157, 122178), (168, 122118), (173, 122070), (180, 122013), (191, 121968),

Gene: Wipeout\_2 Start: 2266, Stop: 1220, Start Num: 18

Candidate Starts for Wipeout\_2:

(Start: 18 @2266 has 18 MA's), (Start: 23 @2221 has 85 MA's), (37, 2110), (43, 2077), (51, 2044), (56, 2032), (58, 2023), (70, 1975), (71, 1957), (72, 1954), (94, 1810), (97, 1801), (104, 1759), (111, 1729), (119, 1690), (122, 1672), (124, 1642), (132, 1579), (157, 1447), (168, 1387), (173, 1339), (180, 1282), (191, 1237),

Gene: Wofford\_3 Start: 2491, Stop: 1490, Start Num: 23

Candidate Starts for Wofford\_3:

(2, 2638), (7, 2599), (8, 2587), (13, 2566), (16, 2548), (Start: 23 @2491 has 85 MA's), (37, 2380), (56, 2302), (58, 2293), (70, 2245), (71, 2227), (72, 2224), (94, 2080), (97, 2071), (111, 1999), (119, 1960), (122, 1942), (124, 1912), (132, 1849), (145, 1792), (146, 1789), (157, 1717), (168, 1657), (170, 1636), (173, 1609), (175, 1591), (189, 1516),

Gene: Wofford\_261 Start: 124284, Stop: 123283, Start Num: 23

Candidate Starts for Wofford\_261:

(2, 124431), (7, 124392), (8, 124380), (13, 124359), (16, 124341), (Start: 23 @124284 has 85 MA's), (37, 124173), (56, 124095), (58, 124086), (70, 124038), (71, 124020), (72, 124017), (94, 123873), (97, 123864), (111, 123792), (119, 123753), (122, 123735), (124, 123705), (132, 123642), (145, 123585), (146, 123582), (157, 123510), (168, 123450), (170, 123429), (173, 123402), (175, 123384), (189, 123309),

Gene: Yaboi\_4 Start: 2628, Stop: 1627, Start Num: 23

Candidate Starts for Yaboi\_4:

(15, 2694), (16, 2685), (Start: 23 @2628 has 85 MA's), (37, 2517), (58, 2430), (89, 2238), (94, 2217), (97, 2208), (104, 2166), (111, 2136), (119, 2097), (122, 2079), (124, 2049), (132, 1986), (157, 1854),

(168, 1794), (173, 1746), (175, 1728), (180, 1689),

Gene: Yaboi\_265 Start: 121446, Stop: 120445, Start Num: 23

Candidate Starts for Yaboi\_265:

(15, 121512), (16, 121503), (Start: 23 @121446 has 85 MA's), (37, 121335), (58, 121248), (89, 121056), (94, 121035), (97, 121026), (104, 120984), (111, 120954), (119, 120915), (122, 120897), (124, 120867), (132, 120804), (157, 120672), (168, 120612), (173, 120564), (175, 120546), (180, 120507),

Gene: Yafa\_17 Start: 12330, Stop: 11326, Start Num: 24

Candidate Starts for Yafa\_17:

(Start: 24 @12330 has 30 MA's), (43, 12201), (67, 12105), (73, 12036), (74, 12027), (85, 11943), (111, 11814), (124, 11721), (134, 11649), (140, 11619), (143, 11607), (148, 11589), (154, 11544), (174, 11412), (178, 11373), (188, 11331),

Gene: Zhengyi\_18 Start: 13141, Stop: 12152, Start Num: 24

Candidate Starts for Zhengyi\_18:

(Start: 24 @13141 has 30 MA's), (27, 13111), (31, 13090), (48, 12985), (67, 12928), (72, 12874), (74, 12850), (77, 12835), (102, 12679), (109, 12646), (160, 12346), (171, 12259), (176, 12217), (178, 12199),