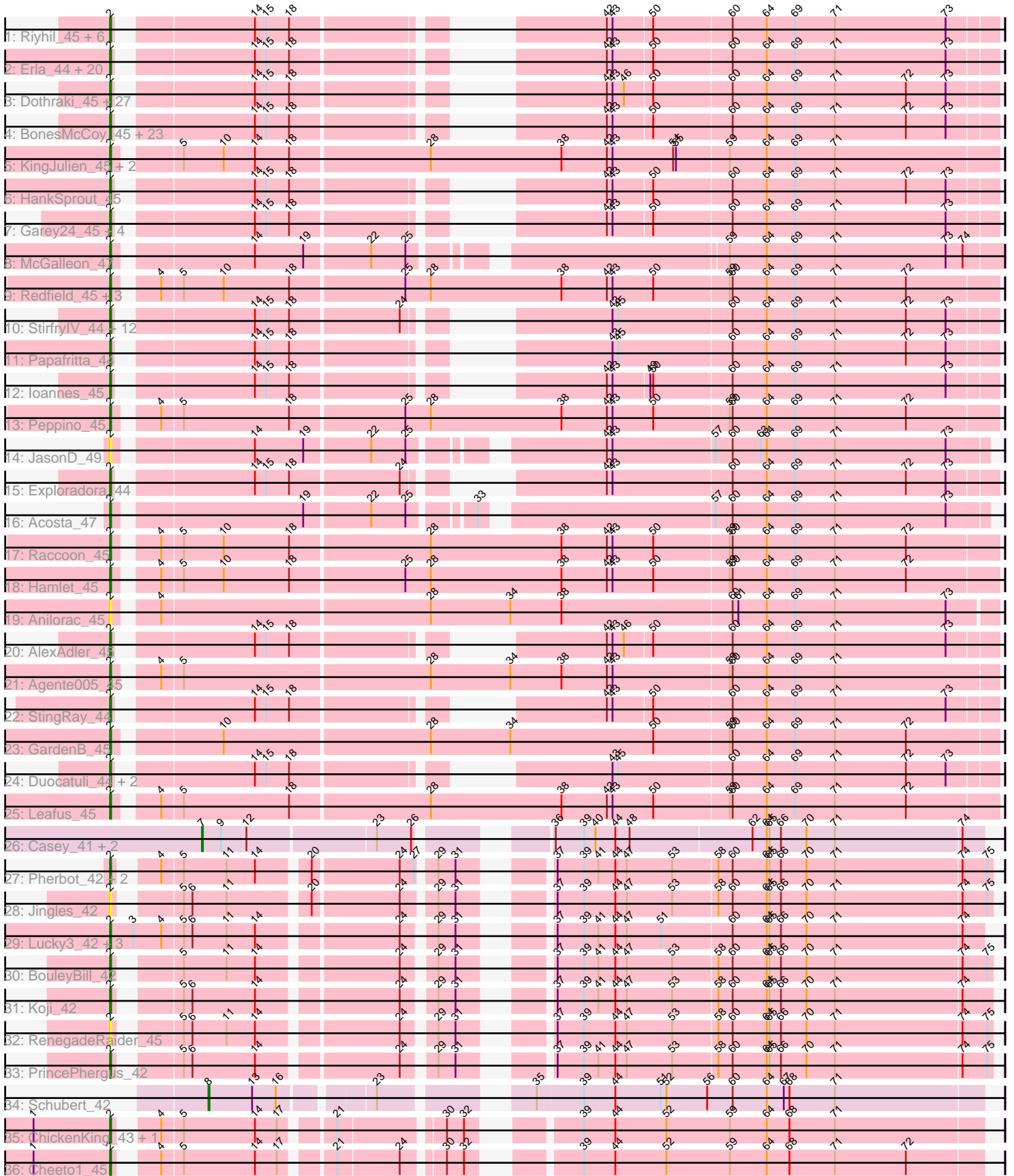


Pham 224370



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 224370 Report

This analysis was run 03/28/25 on database version 593.

Pham number 224370 has 143 members, 10 are drafts.

Phages represented in each track:

- Track 1 : Riyhil\_45, Renzie\_45, Peep\_45, Dave\_45, Robinson\_45, Superfresh\_45, Antoinette\_45
- Track 2 : Erla\_44, Raptor\_45, Aubergine\_44, Kale\_44, ManRay\_44, Winzigespinne\_44, Espinosa\_44, Baines\_44, Pocket\_44, Bonino\_44, Klimt\_45, Chamuel\_44, SonOfLevi\_45, Calix\_44, RosieMae\_46, Christoph\_44, Etta\_44, Gelo\_44, Oats\_44, Tenda\_44, Gubbabump\_44
- Track 3 : Dothraki\_45, NickSell\_45, Martin\_46, Kurt1\_45, Bandik\_45, TatarkaPM\_45, SJay\_45, BeautPeep30\_45, Phireproof\_45, SoilGremlin\_46, Inventa\_45, ParleG\_45, OldNelly\_46, Stanktossa\_45, MillyPhilly\_45, Delphidian\_45, Zada\_46, Phiderman\_45, MrWorldwide\_45, Nagem\_45, Phriends\_45, Byron23\_46, Pherferi\_45, Rapheph\_45, Shee\_45, PhredFlintston\_45, MaeLinda\_45, TinSulphur\_46
- Track 4 : BonesMcCoy\_45, Ludgate\_45, Greys\_45, Thorongil\_45, Strathdee\_45, Vispistious\_45, Thompsone\_45, WildNOut\_45, Oxtober96\_46, Convict\_45, Blage\_45, Alyxandracam\_45, Knox\_45, Velene\_45, Teagan\_45, Figueroism\_45, Gargoyle\_45, PuppyEggo\_45, Janus167\_44, Lovelyunicorn\_45, BigRedClifford\_45, Den3\_45, ShaiHulud\_46, AxiPup\_45
- Track 5 : KingJulien\_45, Etna\_45, Stormbreaker8\_44
- Track 6 : HankSprout\_45
- Track 7 : Garey24\_45, Asta\_44, Nattles\_44, Gershwin\_44, TeddyBear\_44
- Track 8 : McGalleon\_47
- Track 9 : Redfield\_45, Balsa\_44, BeeBee8\_46, Schnapsidee\_45
- Track 10 : StirfryIV\_44, Benjalauren\_45, AranulaLuti\_44, Rog141\_44, HanSolo\_44, Ilzat\_44, JeriBeth\_46, Clancy\_44, Symere\_46, HungryHenry\_44, Sedgewig\_44, KannH\_44, Jerbirus\_46
- Track 11 : Papafritta\_44
- Track 12 : Ioannes\_45
- Track 13 : Peppino\_45
- Track 14 : JasonD\_49
- Track 15 : Exploradora\_44
- Track 16 : Acosta\_47
- Track 17 : Raccoon\_45
- Track 18 : Hamlet\_45
- Track 19 : Anilorac\_45
- Track 20 : AlexAdler\_45
- Track 21 : Agente005\_45
- Track 22 : StingRay\_44

- Track 23 : GardenB\_45
- Track 24 : Duocatuli\_44, Chako\_44, JasperRussell\_44
- Track 25 : Leafus\_45
- Track 26 : Casey\_41, Pajaza\_41, Pikmin\_41
- Track 27 : Pherbot\_42, Bustleton\_42, Sinatra\_43
- Track 28 : Jingles\_42
- Track 29 : Lucky3\_42, SirVictor\_43, Golden\_42, Guetzie\_43
- Track 30 : BouleyBill\_42
- Track 31 : Koji\_42
- Track 32 : RenegadeRaider\_45
- Track 33 : PrincePhergus\_42
- Track 34 : Schubert\_42
- Track 35 : ChickenKing\_43, GaeCeo\_45
- Track 36 : Cheeto1\_45

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

The start number called the most often in the published annotations is 2, it was called in 129 of the 133 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Acosta\_47, Agente005\_45, AlexAdler\_45, Alyxandracam\_45, Anilorac\_45, Antoinette\_45, AranulaLuti\_44, Asta\_44, Aubergine\_44, AxiPup\_45, Baines\_44, Balsa\_44, Bandik\_45, BeautPeep30\_45, BeeBee8\_46, Benjalauren\_45, BigRedClifford\_45, Blage\_45, BonesMcCoy\_45, Bonino\_44, BouleyBill\_42, Bustleton\_42, Byron23\_46, Calix\_44, Chako\_44, Chamuel\_44, Cheeto1\_45, ChickenKing\_43, Christoph\_44, Clancy\_44, Convict\_45, Dave\_45, Delphidian\_45, Den3\_45, Dothraki\_45, Duocatuli\_44, Erla\_44, Espinosa\_44, Etna\_45, Etta\_44, Exploradora\_44, Figueroism\_45, GaeCeo\_45, GardenB\_45, Garey24\_45, Gargoyle\_45, Gelo\_44, Gershwin\_44, Golden\_42, Greys\_45, Gubbabump\_44, Guetzie\_43, Hamlet\_45, HanSolo\_44, HankSprout\_45, HungryHenry\_44, Ilzat\_44, Inventa\_45, Ioannes\_45, Janus167\_44, JasonD\_49, JasperRussell\_44, Jerbirus\_46, JeriBeth\_46, Jingles\_42, Kale\_44, KannH\_44, KingJulien\_45, Klimt\_45, Knox\_45, Koji\_42, Kurt1\_45, Leafus\_45, Lovelyunicorn\_45, Lucky3\_42, Ludgate\_45, MaeLinda\_45, ManRay\_44, Martin\_46, McGalleon\_47, MillyPhilly\_45, MrWorldwide\_45, Nagem\_45, Nattles\_44, NickSell\_45, Oats\_44, OldNelly\_46, Oxtober96\_46, Papafritta\_44, ParleG\_45, Peep\_45, Peppino\_45, Pherbot\_42, Pherferi\_45, Phiderman\_45, Phireproof\_45, PhredFlintston\_45, Phriends\_45, Pocket\_44, PrincePhergus\_42, PuppyEggo\_45, Raccoon\_45, Rapheph\_45, Raptor\_45, Redfield\_45, RenegadeRaider\_45, Renzie\_45, Rihhil\_45, Robinson\_45, Rog141\_44, RosieMae\_46, SJay\_45, Schnapsidee\_45, Sedgewig\_44, ShaiHulud\_46, Shee\_45, Sinatra\_43, SirVictor\_43, SoilGremlin\_46, SonOfLevi\_45, Stanktossa\_45, StingRay\_44, StirfryIV\_44, Stormbreaker8\_44, Strathdee\_45, Superfresh\_45, Symere\_46, TatarkaPM\_45, Teagan\_45, TeddyBear\_44, Tenda\_44, Thompsone\_45, Thorongil\_45, TinSulphur\_46, Velene\_45, Vispistious\_45, WildNOut\_45, Winzigespinne\_44, Zada\_46,

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

-

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

- Casey\_41, Pajaza\_41, Pikmin\_41, Schubert\_42,

### Summary by start number:

Start 2:

- Found in 139 of 143 ( 97.2% ) of genes in pham
- Manual Annotations of this start: 129 of 133
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Acosta\_47 (EA1), Agente005\_45 (EA1), AlexAdler\_45 (EA1), Alyxandracam\_45 (EA1), Anilorac\_45 (EA1), Antoinette\_45 (EA1), AranulaLuti\_44 (EA1), Asta\_44 (EA1), Aubergine\_44 (EA1), AxiPup\_45 (EA1), Baines\_44 (EA1), Balsa\_44 (EA1), Bandik\_45 (EA1), BeautPeep30\_45 (EA1), BeeBee8\_46 (EA1), Benjalauen\_45 (EA1), BigRedClifford\_45 (EA1), Blage\_45 (EA1), BonesMcCoy\_45 (EA1), Bonino\_44 (EA1), BouleyBill\_42 (EA4), Bustleton\_42 (EA4), Byron23\_46 (EA1), Calix\_44 (EA1), Chako\_44 (EA1), Chamuel\_44 (EA1), Cheeto1\_45 (EA9), ChickenKing\_43 (EA9), Christoph\_44 (EA1), Clancy\_44 (EA1), Convict\_45 (EA1), Dave\_45 (EA1), Delphidian\_45 (EA1), Den3\_45 (EA1), Dothraki\_45 (EA1), Duocatuli\_44 (EA1), Erla\_44 (EA1), Espinosa\_44 (EA1), Etna\_45 (EA1), Etta\_44 (EA1), Exploradora\_44 (EA1), Figueroism\_45 (EA1), GaeCeo\_45 (EA9), GardenB\_45 (EA1), Garey24\_45 (EA1), Gargoyle\_45 (EA1), Gelo\_44 (EA1), Gershwin\_44 (EA1), Golden\_42 (EA4), Greys\_45 (EA1), Gubbabump\_44 (EA1), Guetzie\_43 (EA4), Hamlet\_45 (EA1), HanSolo\_44 (EA1), HankSprout\_45 (EA1), HungryHenry\_44 (EA1), Ilzat\_44 (EA1), Inventa\_45 (EA1), Ioannes\_45 (EA1), Janus167\_44 (EA1), JasonD\_49 (EA1), JasperRussell\_44 (EA1), Jerbirus\_46 (EA1), JeriBeth\_46 (EA1), Jingles\_42 (EA4), Kale\_44 (EA1), KannH\_44 (EA1), KingJulien\_45 (EA1), Klimt\_45 (EA1), Knox\_45 (EA1), Koji\_42 (EA4), Kurt1\_45 (EA1), Leafus\_45 (EA1), Lovelyunicorn\_45 (EA1), Lucky3\_42 (EA4), Ludgate\_45 (EA1), MaeLinda\_45 (EA1), ManRay\_44 (EA1), Martin\_46 (EA1), McGalleon\_47 (EA1), MillyPhilly\_45 (EA1), MrWorldwide\_45 (EA1), Nagem\_45 (EA1), Nattles\_44 (EA1), NickSell\_45 (EA1), Oats\_44 (EA1), OldNelly\_46 (EA1), Oxtober96\_46 (EA1), Papafritta\_44 (EA1), ParleG\_45 (EA1), Peep\_45 (EA1), Peppino\_45 (EA1), Pherbot\_42 (EA4), Pherferi\_45 (EA1), Phiderman\_45 (EA1), Phireproof\_45 (EA1), PhredFlintston\_45 (EA1), Phriends\_45 (EA1), Pocket\_44 (EA1), PrincePhergus\_42 (EA4), PuppyEggo\_45 (EA1), Raccoon\_45 (EA1), Rapheph\_45 (EA1), Raptor\_45 (EA1), Redfield\_45 (EA1), RenegadeRaider\_45 (EA4), Renzie\_45 (EA1), Riyhil\_45 (EA1), Robinson\_45 (EA1), Rog141\_44 (EA1), RosieMae\_46 (EA1), SJay\_45 (EA1), Schnapsidee\_45 (EA1), Sedgewig\_44 (EA1), ShaiHulud\_46 (EA1), Shee\_45 (EA1), Sinatra\_43 (EA4), SirVictor\_43 (EA4), SoilGremlin\_46 (EA1), SonOfLevi\_45 (EA1), Stanktossa\_45 (EA1), StingRay\_44 (EA1), StirfryIV\_44 (EA1), Stormbreaker8\_44 (EA1), Strathdee\_45 (EA1), Superfresh\_45 (EA1), Symere\_46 (EA1), TatarkaPM\_45 (EA1), Teagan\_45 (EA1), TeddyBear\_44 (EA1), Tenda\_44 (EA1), Thompsone\_45 (EA1), Thorongil\_45 (EA1), TinSulphur\_46 (EA1), Velene\_45 (EA1), Vispistious\_45 (EA1), WildNOut\_45 (EA1), Winzigespinne\_44 (EA1), Zada\_46 (EA1),

Start 7:

- Found in 3 of 143 ( 2.1% ) of genes in pham
- Manual Annotations of this start: 3 of 133
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Casey\_41 (EA3), Pajaza\_41 (EA3), Pikmin\_41 (EA3),

Start 8:

- Found in 1 of 143 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 133
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Schubert\_42 (EA8),

### **Summary by clusters:**

There are 5 clusters represented in this pham: EA1, EA9, EA3, EA4, EA8,

Info for manual annotations of cluster EA1:

- Start number 2 was manually annotated 116 times for cluster EA1.

Info for manual annotations of cluster EA3:

- Start number 7 was manually annotated 3 times for cluster EA3.

Info for manual annotations of cluster EA4:

- Start number 2 was manually annotated 10 times for cluster EA4.

Info for manual annotations of cluster EA8:

- Start number 8 was manually annotated 1 time for cluster EA8.

Info for manual annotations of cluster EA9:

- Start number 2 was manually annotated 3 times for cluster EA9.

### **Gene Information:**

Gene: Acosta\_47 Start: 33265, Stop: 32417, Start Num: 2

Candidate Starts for Acosta\_47:

(Start: 2 @33265 has 129 MA's), (19, 33082), (22, 33016), (25, 32980), (33, 32923), (57, 32701), (60, 32683), (64, 32647), (69, 32617), (71, 32575), (73, 32458),

Gene: Agente005\_45 Start: 33051, Stop: 32146, Start Num: 2

Candidate Starts for Agente005\_45:

(Start: 2 @33051 has 129 MA's), (4, 33015), (5, 32994), (28, 32739), (34, 32655), (38, 32601), (42, 32553), (43, 32547), (59, 32427), (60, 32424), (64, 32388), (69, 32358), (71, 32316),

Gene: AlexAdler\_45 Start: 33079, Stop: 32273, Start Num: 2

Candidate Starts for AlexAdler\_45:

(Start: 2 @33079 has 129 MA's), (14, 32953), (15, 32941), (18, 32917), (42, 32674), (43, 32668), (46, 32656), (50, 32629), (60, 32548), (64, 32512), (69, 32482), (71, 32440), (73, 32323),

Gene: Alyxandracam\_45 Start: 33089, Stop: 32283, Start Num: 2

Candidate Starts for Alyxandracam\_45:

(Start: 2 @33089 has 129 MA's), (14, 32963), (15, 32951), (18, 32927), (42, 32684), (43, 32678), (50, 32639), (60, 32558), (64, 32522), (69, 32492), (71, 32450), (72, 32375), (73, 32333),

Gene: Anilorac\_45 Start: 32993, Stop: 32091, Start Num: 2

Candidate Starts for Anilorac\_45:

(Start: 2 @32993 has 129 MA's), (4, 32957), (28, 32681), (34, 32597), (38, 32543), (60, 32366), (61, 32360), (64, 32330), (69, 32300), (71, 32258), (73, 32141),

Gene: Antoinette\_45 Start: 33079, Stop: 32273, Start Num: 2

Candidate Starts for Antoinette\_45:

(Start: 2 @33079 has 129 MA's), (14, 32953), (15, 32941), (18, 32917), (42, 32674), (43, 32668), (50, 32629), (60, 32548), (64, 32512), (69, 32482), (71, 32440), (73, 32323),

Gene: AranulaLuti\_44 Start: 32776, Stop: 31967, Start Num: 2

Candidate Starts for AranulaLuti\_44:

(Start: 2 @32776 has 129 MA's), (14, 32650), (15, 32638), (18, 32614), (24, 32503), (43, 32365), (45, 32359), (60, 32242), (64, 32206), (69, 32176), (71, 32134), (72, 32059), (73, 32017),

Gene: Asta\_44 Start: 32786, Stop: 31980, Start Num: 2

Candidate Starts for Asta\_44:

(Start: 2 @32786 has 129 MA's), (14, 32660), (15, 32648), (18, 32624), (42, 32381), (43, 32375), (50, 32336), (60, 32255), (64, 32219), (69, 32189), (71, 32147), (73, 32030),

Gene: Aubergine\_44 Start: 32786, Stop: 31980, Start Num: 2

Candidate Starts for Aubergine\_44:

(Start: 2 @32786 has 129 MA's), (14, 32660), (15, 32648), (18, 32624), (42, 32381), (43, 32375), (50, 32336), (60, 32255), (64, 32219), (69, 32189), (71, 32147), (73, 32030),

Gene: AxiPup\_45 Start: 33058, Stop: 32252, Start Num: 2

Candidate Starts for AxiPup\_45:

(Start: 2 @33058 has 129 MA's), (14, 32932), (15, 32920), (18, 32896), (42, 32653), (43, 32647), (50, 32608), (60, 32527), (64, 32491), (69, 32461), (71, 32419), (72, 32344), (73, 32302),

Gene: Baines\_44 Start: 32779, Stop: 31973, Start Num: 2

Candidate Starts for Baines\_44:

(Start: 2 @32779 has 129 MA's), (14, 32653), (15, 32641), (18, 32617), (42, 32374), (43, 32368), (50, 32329), (60, 32248), (64, 32212), (69, 32182), (71, 32140), (73, 32023),

Gene: Balsa\_44 Start: 33038, Stop: 32133, Start Num: 2

Candidate Starts for Balsa\_44:

(Start: 2 @33038 has 129 MA's), (4, 33002), (5, 32981), (10, 32939), (18, 32870), (25, 32753), (28, 32726), (38, 32588), (42, 32540), (43, 32534), (50, 32492), (59, 32414), (60, 32411), (64, 32375), (69, 32345), (71, 32303), (72, 32228),

Gene: Bandik\_45 Start: 33084, Stop: 32278, Start Num: 2

Candidate Starts for Bandik\_45:

(Start: 2 @33084 has 129 MA's), (14, 32958), (15, 32946), (18, 32922), (42, 32679), (43, 32673), (46, 32661), (50, 32634), (60, 32553), (64, 32517), (69, 32487), (71, 32445), (72, 32370), (73, 32328),

Gene: BeautPeep30\_45 Start: 33090, Stop: 32284, Start Num: 2

Candidate Starts for BeautPeep30\_45:

(Start: 2 @33090 has 129 MA's), (14, 32964), (15, 32952), (18, 32928), (42, 32685), (43, 32679), (46, 32667), (50, 32640), (60, 32559), (64, 32523), (69, 32493), (71, 32451), (72, 32376), (73, 32334),

Gene: BeeBee8\_46 Start: 33209, Stop: 32304, Start Num: 2

Candidate Starts for BeeBee8\_46:

(Start: 2 @33209 has 129 MA's), (4, 33173), (5, 33152), (10, 33110), (18, 33041), (25, 32924), (28, 32897), (38, 32759), (42, 32711), (43, 32705), (50, 32663), (59, 32585), (60, 32582), (64, 32546), (69, 32516), (71, 32474), (72, 32399),

Gene: Benjalauren\_45 Start: 32792, Stop: 31983, Start Num: 2

Candidate Starts for Benjalauren\_45:

(Start: 2 @32792 has 129 MA's), (14, 32666), (15, 32654), (18, 32630), (24, 32519), (43, 32381), (45, 32375), (60, 32258), (64, 32222), (69, 32192), (71, 32150), (72, 32075), (73, 32033),

Gene: BigRedClifford\_45 Start: 33088, Stop: 32282, Start Num: 2

Candidate Starts for BigRedClifford\_45:

(Start: 2 @33088 has 129 MA's), (14, 32962), (15, 32950), (18, 32926), (42, 32683), (43, 32677), (50, 32638), (60, 32557), (64, 32521), (69, 32491), (71, 32449), (72, 32374), (73, 32332),

Gene: Blage\_45 Start: 33088, Stop: 32282, Start Num: 2

Candidate Starts for Blage\_45:

(Start: 2 @33088 has 129 MA's), (14, 32962), (15, 32950), (18, 32926), (42, 32683), (43, 32677), (50, 32638), (60, 32557), (64, 32521), (69, 32491), (71, 32449), (72, 32374), (73, 32332),

Gene: BonesMcCoy\_45 Start: 33088, Stop: 32282, Start Num: 2

Candidate Starts for BonesMcCoy\_45:

(Start: 2 @33088 has 129 MA's), (14, 32962), (15, 32950), (18, 32926), (42, 32683), (43, 32677), (50, 32638), (60, 32557), (64, 32521), (69, 32491), (71, 32449), (72, 32374), (73, 32332),

Gene: Bonino\_44 Start: 32765, Stop: 31959, Start Num: 2

Candidate Starts for Bonino\_44:

(Start: 2 @32765 has 129 MA's), (14, 32639), (15, 32627), (18, 32603), (42, 32360), (43, 32354), (50, 32315), (60, 32234), (64, 32198), (69, 32168), (71, 32126), (73, 32009),

Gene: BouleyBill\_42 Start: 31954, Stop: 31139, Start Num: 2

Candidate Starts for BouleyBill\_42:

(Start: 2 @31954 has 129 MA's), (5, 31903), (11, 31858), (14, 31828), (24, 31696), (29, 31669), (31, 31651), (37, 31588), (39, 31561), (41, 31546), (44, 31528), (47, 31516), (53, 31468), (58, 31423), (60, 31408), (64, 31372), (65, 31369), (66, 31357), (70, 31330), (71, 31300), (74, 31168), (75, 31144),

Gene: Bustleton\_42 Start: 31748, Stop: 30930, Start Num: 2

Candidate Starts for Bustleton\_42:

(Start: 2 @31748 has 129 MA's), (4, 31718), (5, 31697), (11, 31652), (14, 31622), (20, 31577), (24, 31490), (27, 31475), (29, 31460), (31, 31442), (37, 31379), (39, 31352), (41, 31337), (44, 31319), (47, 31307), (53, 31259), (58, 31214), (60, 31199), (64, 31163), (65, 31160), (66, 31148), (70, 31121), (71, 31091), (74, 30959), (75, 30935),

Gene: Byron23\_46 Start: 33087, Stop: 32281, Start Num: 2

Candidate Starts for Byron23\_46:

(Start: 2 @33087 has 129 MA's), (14, 32961), (15, 32949), (18, 32925), (42, 32682), (43, 32676), (46, 32664), (50, 32637), (60, 32556), (64, 32520), (69, 32490), (71, 32448), (72, 32373), (73, 32331),

Gene: Calix\_44 Start: 32772, Stop: 31966, Start Num: 2

Candidate Starts for Calix\_44:

(Start: 2 @32772 has 129 MA's), (14, 32646), (15, 32634), (18, 32610), (42, 32367), (43, 32361), (50, 32322), (60, 32241), (64, 32205), (69, 32175), (71, 32133), (73, 32016),

Gene: Casey\_41 Start: 31268, Stop: 30519, Start Num: 7

Candidate Starts for Casey\_41:

(Start: 7 @31268 has 3 MA's), (9, 31250), (12, 31223), (23, 31094), (26, 31058), (36, 30959), (39, 30932), (40, 30920), (44, 30899), (48, 30884), (62, 30758), (64, 30743), (65, 30740), (66, 30728), (70, 30701), (71, 30671), (74, 30539),

Gene: Chako\_44 Start: 32776, Stop: 31967, Start Num: 2

Candidate Starts for Chako\_44:

(Start: 2 @32776 has 129 MA's), (14, 32650), (15, 32638), (18, 32614), (43, 32365), (45, 32359), (60, 32242), (64, 32206), (69, 32176), (71, 32134), (72, 32059), (73, 32017),

Gene: Chamuel\_44 Start: 32798, Stop: 31992, Start Num: 2

Candidate Starts for Chamuel\_44:

(Start: 2 @32798 has 129 MA's), (14, 32672), (15, 32660), (18, 32636), (42, 32393), (43, 32387), (50, 32348), (60, 32267), (64, 32231), (69, 32201), (71, 32159), (73, 32042),

Gene: Cheeto1\_45 Start: 32549, Stop: 31746, Start Num: 2

Candidate Starts for Cheeto1\_45:

(1, 32630), (Start: 2 @32549 has 129 MA's), (4, 32519), (5, 32498), (14, 32423), (17, 32402), (21, 32357), (24, 32294), (30, 32258), (32, 32240), (39, 32162), (44, 32129), (52, 32075), (59, 32009), (64, 31970), (68, 31946), (71, 31898), (72, 31823),

Gene: ChickenKing\_43 Start: 32442, Stop: 31639, Start Num: 2

Candidate Starts for ChickenKing\_43:

(1, 32523), (Start: 2 @32442 has 129 MA's), (4, 32412), (5, 32391), (14, 32316), (17, 32295), (21, 32250), (30, 32151), (32, 32133), (39, 32055), (44, 32022), (52, 31968), (59, 31902), (64, 31863), (68, 31839), (71, 31791),

Gene: Christoph\_44 Start: 32785, Stop: 31979, Start Num: 2

Candidate Starts for Christoph\_44:

(Start: 2 @32785 has 129 MA's), (14, 32659), (15, 32647), (18, 32623), (42, 32380), (43, 32374), (50, 32335), (60, 32254), (64, 32218), (69, 32188), (71, 32146), (73, 32029),

Gene: Clancy\_44 Start: 32821, Stop: 32012, Start Num: 2

Candidate Starts for Clancy\_44:

(Start: 2 @32821 has 129 MA's), (14, 32695), (15, 32683), (18, 32659), (24, 32548), (43, 32410), (45, 32404), (60, 32287), (64, 32251), (69, 32221), (71, 32179), (72, 32104), (73, 32062),

Gene: Convict\_45 Start: 33088, Stop: 32282, Start Num: 2

Candidate Starts for Convict\_45:

(Start: 2 @33088 has 129 MA's), (14, 32962), (15, 32950), (18, 32926), (42, 32683), (43, 32677), (50, 32638), (60, 32557), (64, 32521), (69, 32491), (71, 32449), (72, 32374), (73, 32332),

Gene: Dave\_45 Start: 33079, Stop: 32273, Start Num: 2

Candidate Starts for Dave\_45:

(Start: 2 @33079 has 129 MA's), (14, 32953), (15, 32941), (18, 32917), (42, 32674), (43, 32668), (50, 32629), (60, 32548), (64, 32512), (69, 32482), (71, 32440), (73, 32323),

Gene: Delphidian\_45 Start: 33087, Stop: 32281, Start Num: 2

Candidate Starts for Delphidian\_45:

(Start: 2 @33087 has 129 MA's), (14, 32961), (15, 32949), (18, 32925), (42, 32682), (43, 32676), (46, 32664), (50, 32637), (60, 32556), (64, 32520), (69, 32490), (71, 32448), (72, 32373), (73, 32331),

Gene: Den3\_45 Start: 33093, Stop: 32287, Start Num: 2

Candidate Starts for Den3\_45:

(Start: 2 @33093 has 129 MA's), (14, 32967), (15, 32955), (18, 32931), (42, 32688), (43, 32682), (50, 32643), (60, 32562), (64, 32526), (69, 32496), (71, 32454), (72, 32379), (73, 32337),

Gene: Dothraki\_45 Start: 33087, Stop: 32281, Start Num: 2



Candidate Starts for Dothraki\_45:

(Start: 2 @33087 has 129 MA's), (14, 32961), (15, 32949), (18, 32925), (42, 32682), (43, 32676), (46, 32664), (50, 32637), (60, 32556), (64, 32520), (69, 32490), (71, 32448), (72, 32373), (73, 32331),

Gene: Duocatuli\_44 Start: 32776, Stop: 31967, Start Num: 2

Candidate Starts for Duocatuli\_44:

(Start: 2 @32776 has 129 MA's), (14, 32650), (15, 32638), (18, 32614), (43, 32365), (45, 32359), (60, 32242), (64, 32206), (69, 32176), (71, 32134), (72, 32059), (73, 32017),

Gene: Erla\_44 Start: 32769, Stop: 31963, Start Num: 2

Candidate Starts for Erla\_44:

(Start: 2 @32769 has 129 MA's), (14, 32643), (15, 32631), (18, 32607), (42, 32364), (43, 32358), (50, 32319), (60, 32238), (64, 32202), (69, 32172), (71, 32130), (73, 32013),

Gene: Espinosa\_44 Start: 32784, Stop: 31978, Start Num: 2

Candidate Starts for Espinosa\_44:

(Start: 2 @32784 has 129 MA's), (14, 32658), (15, 32646), (18, 32622), (42, 32379), (43, 32373), (50, 32334), (60, 32253), (64, 32217), (69, 32187), (71, 32145), (73, 32028),

Gene: Etna\_45 Start: 33085, Stop: 32180, Start Num: 2

Candidate Starts for Etna\_45:

(Start: 2 @33085 has 129 MA's), (5, 33028), (10, 32986), (14, 32953), (18, 32917), (28, 32773), (38, 32635), (42, 32587), (43, 32581), (54, 32518), (55, 32515), (59, 32461), (64, 32422), (69, 32392), (71, 32350),

Gene: Etta\_44 Start: 32773, Stop: 31967, Start Num: 2

Candidate Starts for Etta\_44:

(Start: 2 @32773 has 129 MA's), (14, 32647), (15, 32635), (18, 32611), (42, 32368), (43, 32362), (50, 32323), (60, 32242), (64, 32206), (69, 32176), (71, 32134), (73, 32017),

Gene: Exploradora\_44 Start: 32776, Stop: 31967, Start Num: 2

Candidate Starts for Exploradora\_44:

(Start: 2 @32776 has 129 MA's), (14, 32650), (15, 32638), (18, 32614), (24, 32503), (42, 32371), (43, 32365), (60, 32242), (64, 32206), (69, 32176), (71, 32134), (72, 32059), (73, 32017),

Gene: Figueroism\_45 Start: 33078, Stop: 32272, Start Num: 2

Candidate Starts for Figueroism\_45:

(Start: 2 @33078 has 129 MA's), (14, 32952), (15, 32940), (18, 32916), (42, 32673), (43, 32667), (50, 32628), (60, 32547), (64, 32511), (69, 32481), (71, 32439), (72, 32364), (73, 32322),

Gene: GaeCeo\_45 Start: 32675, Stop: 31872, Start Num: 2

Candidate Starts for GaeCeo\_45:

(1, 32756), (Start: 2 @32675 has 129 MA's), (4, 32645), (5, 32624), (14, 32549), (17, 32528), (21, 32483), (30, 32384), (32, 32366), (39, 32288), (44, 32255), (52, 32201), (59, 32135), (64, 32096), (68, 32072), (71, 32024),

Gene: GardenB\_45 Start: 33026, Stop: 32121, Start Num: 2

Candidate Starts for GardenB\_45:

(Start: 2 @33026 has 129 MA's), (10, 32927), (28, 32714), (34, 32630), (50, 32480), (59, 32402), (60, 32399), (64, 32363), (69, 32333), (71, 32291), (72, 32216),

Gene: Garey24\_45 Start: 32752, Stop: 31946, Start Num: 2

Candidate Starts for Garey24\_45:

(Start: 2 @32752 has 129 MA's), (14, 32626), (15, 32614), (18, 32590), (42, 32347), (43, 32341), (50, 32302), (60, 32221), (64, 32185), (69, 32155), (71, 32113), (73, 31996),

Gene: Gargoyle\_45 Start: 33093, Stop: 32287, Start Num: 2

Candidate Starts for Gargoyle\_45:

(Start: 2 @33093 has 129 MA's), (14, 32967), (15, 32955), (18, 32931), (42, 32688), (43, 32682), (50, 32643), (60, 32562), (64, 32526), (69, 32496), (71, 32454), (72, 32379), (73, 32337),

Gene: Gelo\_44 Start: 32779, Stop: 31973, Start Num: 2

Candidate Starts for Gelo\_44:

(Start: 2 @32779 has 129 MA's), (14, 32653), (15, 32641), (18, 32617), (42, 32374), (43, 32368), (50, 32329), (60, 32248), (64, 32212), (69, 32182), (71, 32140), (73, 32023),

Gene: Gershwin\_44 Start: 32786, Stop: 31980, Start Num: 2

Candidate Starts for Gershwin\_44:

(Start: 2 @32786 has 129 MA's), (14, 32660), (15, 32648), (18, 32624), (42, 32381), (43, 32375), (50, 32336), (60, 32255), (64, 32219), (69, 32189), (71, 32147), (73, 32030),

Gene: Golden\_42 Start: 31840, Stop: 31010, Start Num: 2

Candidate Starts for Golden\_42:

(Start: 2 @31840 has 129 MA's), (3, 31816), (4, 31786), (5, 31765), (6, 31756), (11, 31720), (14, 31690), (24, 31558), (29, 31531), (31, 31513), (37, 31450), (39, 31423), (41, 31408), (44, 31390), (47, 31378), (51, 31342), (60, 31270), (64, 31234), (65, 31231), (66, 31219), (70, 31192), (71, 31162), (74, 31030),

Gene: Greys\_45 Start: 33086, Stop: 32280, Start Num: 2

Candidate Starts for Greys\_45:

(Start: 2 @33086 has 129 MA's), (14, 32960), (15, 32948), (18, 32924), (42, 32681), (43, 32675), (50, 32636), (60, 32555), (64, 32519), (69, 32489), (71, 32447), (72, 32372), (73, 32330),

Gene: Gubbabump\_44 Start: 32766, Stop: 31960, Start Num: 2

Candidate Starts for Gubbabump\_44:

(Start: 2 @32766 has 129 MA's), (14, 32640), (15, 32628), (18, 32604), (42, 32361), (43, 32355), (50, 32316), (60, 32235), (64, 32199), (69, 32169), (71, 32127), (73, 32010),

Gene: Guetzie\_43 Start: 31825, Stop: 30995, Start Num: 2

Candidate Starts for Guetzie\_43:

(Start: 2 @31825 has 129 MA's), (3, 31801), (4, 31771), (5, 31750), (6, 31741), (11, 31705), (14, 31675), (24, 31543), (29, 31516), (31, 31498), (37, 31435), (39, 31408), (41, 31393), (44, 31375), (47, 31363), (51, 31327), (60, 31255), (64, 31219), (65, 31216), (66, 31204), (70, 31177), (71, 31147), (74, 31015),

Gene: Hamlet\_45 Start: 33030, Stop: 32125, Start Num: 2

Candidate Starts for Hamlet\_45:

(Start: 2 @33030 has 129 MA's), (4, 32994), (5, 32973), (10, 32931), (18, 32862), (25, 32745), (28, 32718), (38, 32580), (42, 32532), (43, 32526), (50, 32484), (59, 32406), (60, 32403), (64, 32367), (69, 32337), (71, 32295), (72, 32220),

Gene: HanSolo\_44 Start: 32776, Stop: 31967, Start Num: 2

Candidate Starts for HanSolo\_44:

(Start: 2 @32776 has 129 MA's), (14, 32650), (15, 32638), (18, 32614), (24, 32503), (43, 32365), (45, 32359), (60, 32242), (64, 32206), (69, 32176), (71, 32134), (72, 32059), (73, 32017),

Gene: HankSprout\_45 Start: 32653, Stop: 31847, Start Num: 2

Candidate Starts for HankSprout\_45:

(Start: 2 @32653 has 129 MA's), (14, 32527), (15, 32515), (18, 32491), (42, 32248), (43, 32242), (50, 32203), (60, 32122), (64, 32086), (69, 32056), (71, 32014), (72, 31939), (73, 31897),

Gene: HungryHenry\_44 Start: 32781, Stop: 31972, Start Num: 2

Candidate Starts for HungryHenry\_44:

(Start: 2 @32781 has 129 MA's), (14, 32655), (15, 32643), (18, 32619), (24, 32508), (43, 32370), (45, 32364), (60, 32247), (64, 32211), (69, 32181), (71, 32139), (72, 32064), (73, 32022),

Gene: Ilzat\_44 Start: 32792, Stop: 31983, Start Num: 2

Candidate Starts for Ilzat\_44:

(Start: 2 @32792 has 129 MA's), (14, 32666), (15, 32654), (18, 32630), (24, 32519), (43, 32381), (45, 32375), (60, 32258), (64, 32222), (69, 32192), (71, 32150), (72, 32075), (73, 32033),

Gene: Inventa\_45 Start: 33084, Stop: 32278, Start Num: 2

Candidate Starts for Inventa\_45:

(Start: 2 @33084 has 129 MA's), (14, 32958), (15, 32946), (18, 32922), (42, 32679), (43, 32673), (46, 32661), (50, 32634), (60, 32553), (64, 32517), (69, 32487), (71, 32445), (72, 32370), (73, 32328),

Gene: Ioannes\_45 Start: 33088, Stop: 32282, Start Num: 2

Candidate Starts for Ioannes\_45:

(Start: 2 @33088 has 129 MA's), (14, 32962), (15, 32950), (18, 32926), (42, 32683), (43, 32677), (49, 32641), (50, 32638), (60, 32557), (64, 32521), (69, 32491), (71, 32449), (73, 32332),

Gene: Janus167\_44 Start: 32773, Stop: 31967, Start Num: 2

Candidate Starts for Janus167\_44:

(Start: 2 @32773 has 129 MA's), (14, 32647), (15, 32635), (18, 32611), (42, 32368), (43, 32362), (50, 32323), (60, 32242), (64, 32206), (69, 32176), (71, 32134), (72, 32059), (73, 32017),

Gene: JasonD\_49 Start: 33193, Stop: 32345, Start Num: 2

Candidate Starts for JasonD\_49:

(Start: 2 @33193 has 129 MA's), (14, 33061), (19, 33010), (22, 32944), (25, 32908), (42, 32740), (43, 32734), (57, 32629), (60, 32611), (63, 32581), (64, 32575), (69, 32545), (71, 32503), (73, 32386),

Gene: JasperRussell\_44 Start: 32776, Stop: 31967, Start Num: 2

Candidate Starts for JasperRussell\_44:

(Start: 2 @32776 has 129 MA's), (14, 32650), (15, 32638), (18, 32614), (43, 32365), (45, 32359), (60, 32242), (64, 32206), (69, 32176), (71, 32134), (72, 32059), (73, 32017),

Gene: Jerbirus\_46 Start: 32776, Stop: 31967, Start Num: 2

Candidate Starts for Jerbirus\_46:

(Start: 2 @32776 has 129 MA's), (14, 32650), (15, 32638), (18, 32614), (24, 32503), (43, 32365), (45, 32359), (60, 32242), (64, 32206), (69, 32176), (71, 32134), (72, 32059), (73, 32017),

Gene: JeriBeth\_46 Start: 32639, Stop: 31830, Start Num: 2

Candidate Starts for JeriBeth\_46:

(Start: 2 @32639 has 129 MA's), (14, 32513), (15, 32501), (18, 32477), (24, 32366), (43, 32228), (45, 32222), (60, 32105), (64, 32069), (69, 32039), (71, 31997), (72, 31922), (73, 31880),

Gene: Jingles\_42 Start: 31963, Stop: 31145, Start Num: 2

Candidate Starts for Jingles\_42:

(Start: 2 @31963 has 129 MA's), (5, 31912), (6, 31903), (11, 31867), (20, 31792), (24, 31705), (29, 31675), (31, 31657), (37, 31594), (39, 31567), (44, 31534), (47, 31522), (53, 31474), (58, 31429), (60, 31414), (64, 31378), (65, 31375), (66, 31363), (70, 31336), (71, 31306), (74, 31174), (75, 31150),

Gene: Kale\_44 Start: 32788, Stop: 31982, Start Num: 2

Candidate Starts for Kale\_44:

(Start: 2 @32788 has 129 MA's), (14, 32662), (15, 32650), (18, 32626), (42, 32383), (43, 32377), (50, 32338), (60, 32257), (64, 32221), (69, 32191), (71, 32149), (73, 32032),

Gene: KannH\_44 Start: 32776, Stop: 31967, Start Num: 2

Candidate Starts for KannH\_44:

(Start: 2 @32776 has 129 MA's), (14, 32650), (15, 32638), (18, 32614), (24, 32503), (43, 32365), (45, 32359), (60, 32242), (64, 32206), (69, 32176), (71, 32134), (72, 32059), (73, 32017),

Gene: KingJulien\_45 Start: 32921, Stop: 32016, Start Num: 2

Candidate Starts for KingJulien\_45:

(Start: 2 @32921 has 129 MA's), (5, 32864), (10, 32822), (14, 32789), (18, 32753), (28, 32609), (38, 32471), (42, 32423), (43, 32417), (54, 32354), (55, 32351), (59, 32297), (64, 32258), (69, 32228), (71, 32186),

Gene: Klimt\_45 Start: 32804, Stop: 31998, Start Num: 2

Candidate Starts for Klimt\_45:

(Start: 2 @32804 has 129 MA's), (14, 32678), (15, 32666), (18, 32642), (42, 32399), (43, 32393), (50, 32354), (60, 32273), (64, 32237), (69, 32207), (71, 32165), (73, 32048),

Gene: Knox\_45 Start: 33088, Stop: 32282, Start Num: 2

Candidate Starts for Knox\_45:

(Start: 2 @33088 has 129 MA's), (14, 32962), (15, 32950), (18, 32926), (42, 32683), (43, 32677), (50, 32638), (60, 32557), (64, 32521), (69, 32491), (71, 32449), (72, 32374), (73, 32332),

Gene: Koji\_42 Start: 32119, Stop: 31304, Start Num: 2

Candidate Starts for Koji\_42:

(Start: 2 @32119 has 129 MA's), (5, 32068), (6, 32059), (14, 31993), (24, 31861), (29, 31834), (31, 31816), (37, 31753), (39, 31726), (41, 31711), (44, 31693), (47, 31681), (53, 31633), (58, 31588), (60, 31573), (64, 31537), (65, 31534), (66, 31522), (70, 31495), (71, 31465), (74, 31333),

Gene: Kurt1\_45 Start: 33084, Stop: 32278, Start Num: 2

Candidate Starts for Kurt1\_45:

(Start: 2 @33084 has 129 MA's), (14, 32958), (15, 32946), (18, 32922), (42, 32679), (43, 32673), (46, 32661), (50, 32634), (60, 32553), (64, 32517), (69, 32487), (71, 32445), (72, 32370), (73, 32328),

Gene: Leafus\_45 Start: 33184, Stop: 32279, Start Num: 2

Candidate Starts for Leafus\_45:

(Start: 2 @33184 has 129 MA's), (4, 33148), (5, 33127), (18, 33016), (28, 32872), (38, 32734), (42, 32686), (43, 32680), (50, 32638), (59, 32560), (60, 32557), (64, 32521), (69, 32491), (71, 32449), (72, 32374),

Gene: Lovelyunicorn\_45 Start: 33089, Stop: 32283, Start Num: 2

Candidate Starts for Lovelyunicorn\_45:

(Start: 2 @33089 has 129 MA's), (14, 32963), (15, 32951), (18, 32927), (42, 32684), (43, 32678), (50, 32639), (60, 32558), (64, 32522), (69, 32492), (71, 32450), (72, 32375), (73, 32333),

Gene: Lucky3\_42 Start: 31840, Stop: 31010, Start Num: 2

Candidate Starts for Lucky3\_42:

(Start: 2 @31840 has 129 MA's), (3, 31816), (4, 31786), (5, 31765), (6, 31756), (11, 31720), (14, 31690), (24, 31558), (29, 31531), (31, 31513), (37, 31450), (39, 31423), (41, 31408), (44, 31390), (47, 31378), (51, 31342), (60, 31270), (64, 31234), (65, 31231), (66, 31219), (70, 31192), (71, 31162), (74, 31030),

Gene: Ludgate\_45 Start: 33087, Stop: 32281, Start Num: 2

Candidate Starts for Ludgate\_45:

(Start: 2 @33087 has 129 MA's), (14, 32961), (15, 32949), (18, 32925), (42, 32682), (43, 32676), (50, 32637), (60, 32556), (64, 32520), (69, 32490), (71, 32448), (72, 32373), (73, 32331),

Gene: MaeLinda\_45 Start: 33088, Stop: 32282, Start Num: 2

Candidate Starts for MaeLinda\_45:

(Start: 2 @33088 has 129 MA's), (14, 32962), (15, 32950), (18, 32926), (42, 32683), (43, 32677), (46, 32665), (50, 32638), (60, 32557), (64, 32521), (69, 32491), (71, 32449), (72, 32374), (73, 32332),

Gene: ManRay\_44 Start: 32786, Stop: 31980, Start Num: 2

Candidate Starts for ManRay\_44:

(Start: 2 @32786 has 129 MA's), (14, 32660), (15, 32648), (18, 32624), (42, 32381), (43, 32375), (50, 32336), (60, 32255), (64, 32219), (69, 32189), (71, 32147), (73, 32030),

Gene: Martin\_46 Start: 33093, Stop: 32287, Start Num: 2

Candidate Starts for Martin\_46:

(Start: 2 @33093 has 129 MA's), (14, 32967), (15, 32955), (18, 32931), (42, 32688), (43, 32682), (46, 32670), (50, 32643), (60, 32562), (64, 32526), (69, 32496), (71, 32454), (72, 32379), (73, 32337),

Gene: McGalleon\_47 Start: 34056, Stop: 33193, Start Num: 2

Candidate Starts for McGalleon\_47:

(Start: 2 @34056 has 129 MA's), (14, 33924), (19, 33873), (22, 33807), (25, 33771), (59, 33480), (64, 33441), (69, 33411), (71, 33369), (73, 33252), (74, 33234),

Gene: MillyPhilly\_45 Start: 33081, Stop: 32275, Start Num: 2

Candidate Starts for MillyPhilly\_45:

(Start: 2 @33081 has 129 MA's), (14, 32955), (15, 32943), (18, 32919), (42, 32676), (43, 32670), (46, 32658), (50, 32631), (60, 32550), (64, 32514), (69, 32484), (71, 32442), (72, 32367), (73, 32325),

Gene: MrWorldwide\_45 Start: 33091, Stop: 32285, Start Num: 2

Candidate Starts for MrWorldwide\_45:

(Start: 2 @33091 has 129 MA's), (14, 32965), (15, 32953), (18, 32929), (42, 32686), (43, 32680), (46, 32668), (50, 32641), (60, 32560), (64, 32524), (69, 32494), (71, 32452), (72, 32377), (73, 32335),

Gene: Nagem\_45 Start: 33084, Stop: 32278, Start Num: 2

Candidate Starts for Nagem\_45:

(Start: 2 @33084 has 129 MA's), (14, 32958), (15, 32946), (18, 32922), (42, 32679), (43, 32673), (46, 32661), (50, 32634), (60, 32553), (64, 32517), (69, 32487), (71, 32445), (72, 32370), (73, 32328),

Gene: Nattles\_44 Start: 32773, Stop: 31967, Start Num: 2

Candidate Starts for Nattles\_44:

(Start: 2 @32773 has 129 MA's), (14, 32647), (15, 32635), (18, 32611), (42, 32368), (43, 32362), (50, 32323), (60, 32242), (64, 32206), (69, 32176), (71, 32134), (73, 32017),

Gene: NickSell\_45 Start: 33094, Stop: 32288, Start Num: 2

Candidate Starts for NickSell\_45:

(Start: 2 @33094 has 129 MA's), (14, 32968), (15, 32956), (18, 32932), (42, 32689), (43, 32683), (46, 32671), (50, 32644), (60, 32563), (64, 32527), (69, 32497), (71, 32455), (72, 32380), (73, 32338),

Gene: Oats\_44 Start: 32786, Stop: 31980, Start Num: 2

Candidate Starts for Oats\_44:

(Start: 2 @32786 has 129 MA's), (14, 32660), (15, 32648), (18, 32624), (42, 32381), (43, 32375), (50, 32336), (60, 32255), (64, 32219), (69, 32189), (71, 32147), (73, 32030),

Gene: OldNelly\_46 Start: 33090, Stop: 32284, Start Num: 2

Candidate Starts for OldNelly\_46:

(Start: 2 @33090 has 129 MA's), (14, 32964), (15, 32952), (18, 32928), (42, 32685), (43, 32679), (46, 32667), (50, 32640), (60, 32559), (64, 32523), (69, 32493), (71, 32451), (72, 32376), (73, 32334),

Gene: Oxtober96\_46 Start: 33089, Stop: 32283, Start Num: 2

Candidate Starts for Oxtober96\_46:

(Start: 2 @33089 has 129 MA's), (14, 32963), (15, 32951), (18, 32927), (42, 32684), (43, 32678), (50, 32639), (60, 32558), (64, 32522), (69, 32492), (71, 32450), (72, 32375), (73, 32333),

Gene: Pajaza\_41 Start: 31268, Stop: 30519, Start Num: 7

Candidate Starts for Pajaza\_41:

(Start: 7 @31268 has 3 MA's), (9, 31250), (12, 31223), (23, 31094), (26, 31058), (36, 30959), (39, 30932), (40, 30920), (44, 30899), (48, 30884), (62, 30758), (64, 30743), (65, 30740), (66, 30728), (70, 30701), (71, 30671), (74, 30539),

Gene: Papafritta\_44 Start: 32797, Stop: 31988, Start Num: 2

Candidate Starts for Papafritta\_44:

(Start: 2 @32797 has 129 MA's), (14, 32671), (15, 32659), (18, 32635), (43, 32386), (45, 32380), (60, 32263), (64, 32227), (69, 32197), (71, 32155), (72, 32080), (73, 32038),

Gene: ParleG\_45 Start: 33091, Stop: 32285, Start Num: 2

Candidate Starts for ParleG\_45:

(Start: 2 @33091 has 129 MA's), (14, 32965), (15, 32953), (18, 32929), (42, 32686), (43, 32680), (46, 32668), (50, 32641), (60, 32560), (64, 32524), (69, 32494), (71, 32452), (72, 32377), (73, 32335),

Gene: Peep\_45 Start: 33076, Stop: 32270, Start Num: 2

Candidate Starts for Peep\_45:

(Start: 2 @33076 has 129 MA's), (14, 32950), (15, 32938), (18, 32914), (42, 32671), (43, 32665), (50, 32626), (60, 32545), (64, 32509), (69, 32479), (71, 32437), (73, 32320),

Gene: Peppino\_45 Start: 33030, Stop: 32125, Start Num: 2

Candidate Starts for Peppino\_45:

(Start: 2 @33030 has 129 MA's), (4, 32994), (5, 32973), (18, 32862), (25, 32745), (28, 32718), (38, 32580), (42, 32532), (43, 32526), (50, 32484), (59, 32406), (60, 32403), (64, 32367), (69, 32337), (71, 32295), (72, 32220),

Gene: Pherbot\_42 Start: 31735, Stop: 30917, Start Num: 2

Candidate Starts for Pherbot\_42:

(Start: 2 @31735 has 129 MA's), (4, 31705), (5, 31684), (11, 31639), (14, 31609), (20, 31564), (24, 31477), (27, 31462), (29, 31447), (31, 31429), (37, 31366), (39, 31339), (41, 31324), (44, 31306), (47, 31294), (53, 31246), (58, 31201), (60, 31186), (64, 31150), (65, 31147), (66, 31135), (70, 31108), (71, 31078), (74, 30946), (75, 30922),

Gene: Pherferi\_45 Start: 33084, Stop: 32278, Start Num: 2

Candidate Starts for Pherferi\_45:

(Start: 2 @33084 has 129 MA's), (14, 32958), (15, 32946), (18, 32922), (42, 32679), (43, 32673), (46, 32661), (50, 32634), (60, 32553), (64, 32517), (69, 32487), (71, 32445), (72, 32370), (73, 32328),

Gene: Phiderman\_45 Start: 33081, Stop: 32275, Start Num: 2

Candidate Starts for Phiderman\_45:

(Start: 2 @33081 has 129 MA's), (14, 32955), (15, 32943), (18, 32919), (42, 32676), (43, 32670), (46, 32658), (50, 32631), (60, 32550), (64, 32514), (69, 32484), (71, 32442), (72, 32367), (73, 32325),

Gene: Phireproof\_45 Start: 33090, Stop: 32284, Start Num: 2

Candidate Starts for Phireproof\_45:

(Start: 2 @33090 has 129 MA's), (14, 32964), (15, 32952), (18, 32928), (42, 32685), (43, 32679), (46, 32667), (50, 32640), (60, 32559), (64, 32523), (69, 32493), (71, 32451), (72, 32376), (73, 32334),

Gene: PhredFlintston\_45 Start: 33084, Stop: 32278, Start Num: 2

Candidate Starts for PhredFlintston\_45:

(Start: 2 @33084 has 129 MA's), (14, 32958), (15, 32946), (18, 32922), (42, 32679), (43, 32673), (46, 32661), (50, 32634), (60, 32553), (64, 32517), (69, 32487), (71, 32445), (72, 32370), (73, 32328),

Gene: Phriends\_45 Start: 33090, Stop: 32284, Start Num: 2

Candidate Starts for Phriends\_45:

(Start: 2 @33090 has 129 MA's), (14, 32964), (15, 32952), (18, 32928), (42, 32685), (43, 32679), (46, 32667), (50, 32640), (60, 32559), (64, 32523), (69, 32493), (71, 32451), (72, 32376), (73, 32334),

Gene: Pikmin\_41 Start: 31268, Stop: 30519, Start Num: 7

Candidate Starts for Pikmin\_41:

(Start: 7 @31268 has 3 MA's), (9, 31250), (12, 31223), (23, 31094), (26, 31058), (36, 30959), (39, 30932), (40, 30920), (44, 30899), (48, 30884), (62, 30758), (64, 30743), (65, 30740), (66, 30728), (70, 30701), (71, 30671), (74, 30539),

Gene: Pocket\_44 Start: 32813, Stop: 32007, Start Num: 2

Candidate Starts for Pocket\_44:

(Start: 2 @32813 has 129 MA's), (14, 32687), (15, 32675), (18, 32651), (42, 32408), (43, 32402), (50, 32363), (60, 32282), (64, 32246), (69, 32216), (71, 32174), (73, 32057),

Gene: PrincePhergus\_42 Start: 31751, Stop: 30936, Start Num: 2

Candidate Starts for PrincePhergus\_42:

(Start: 2 @31751 has 129 MA's), (5, 31700), (6, 31691), (14, 31625), (24, 31493), (29, 31466), (31, 31448), (37, 31385), (39, 31358), (41, 31343), (44, 31325), (47, 31313), (53, 31265), (58, 31220), (60, 31205), (64, 31169), (65, 31166), (66, 31154), (70, 31127), (71, 31097), (74, 30965), (75, 30941),

Gene: PuppyEggo\_45 Start: 33091, Stop: 32285, Start Num: 2

Candidate Starts for PuppyEggo\_45:

(Start: 2 @33091 has 129 MA's), (14, 32965), (15, 32953), (18, 32929), (42, 32686), (43, 32680), (50, 32641), (60, 32560), (64, 32524), (69, 32494), (71, 32452), (72, 32377), (73, 32335),

Gene: Raccoon\_45 Start: 32987, Stop: 32082, Start Num: 2

Candidate Starts for Raccoon\_45:

(Start: 2 @32987 has 129 MA's), (4, 32951), (5, 32930), (10, 32888), (18, 32819), (28, 32675), (38, 32537), (42, 32489), (43, 32483), (50, 32441), (59, 32363), (60, 32360), (64, 32324), (69, 32294), (71, 32252), (72, 32177),

Gene: Rapheph\_45 Start: 33084, Stop: 32278, Start Num: 2

Candidate Starts for Rapheph\_45:

(Start: 2 @33084 has 129 MA's), (14, 32958), (15, 32946), (18, 32922), (42, 32679), (43, 32673), (46, 32661), (50, 32634), (60, 32553), (64, 32517), (69, 32487), (71, 32445), (72, 32370), (73, 32328),

Gene: Raptor\_45 Start: 33091, Stop: 32285, Start Num: 2

Candidate Starts for Raptor\_45:

(Start: 2 @33091 has 129 MA's), (14, 32965), (15, 32953), (18, 32929), (42, 32686), (43, 32680), (50, 32641), (60, 32560), (64, 32524), (69, 32494), (71, 32452), (73, 32335),

Gene: Redfield\_45 Start: 33038, Stop: 32133, Start Num: 2

Candidate Starts for Redfield\_45:

(Start: 2 @33038 has 129 MA's), (4, 33002), (5, 32981), (10, 32939), (18, 32870), (25, 32753), (28, 32726), (38, 32588), (42, 32540), (43, 32534), (50, 32492), (59, 32414), (60, 32411), (64, 32375), (69, 32345), (71, 32303), (72, 32228),

Gene: RenegadeRaider\_45 Start: 31806, Stop: 30991, Start Num: 2

Candidate Starts for RenegadeRaider\_45:

(Start: 2 @31806 has 129 MA's), (5, 31755), (6, 31746), (11, 31710), (14, 31680), (24, 31548), (29, 31521), (31, 31503), (37, 31440), (39, 31413), (44, 31380), (47, 31368), (53, 31320), (58, 31275), (60, 31260), (64, 31224), (65, 31221), (66, 31209), (70, 31182), (71, 31152), (74, 31020), (75, 30996),

Gene: Renzie\_45 Start: 33079, Stop: 32273, Start Num: 2

Candidate Starts for Renzie\_45:

(Start: 2 @33079 has 129 MA's), (14, 32953), (15, 32941), (18, 32917), (42, 32674), (43, 32668), (50, 32629), (60, 32548), (64, 32512), (69, 32482), (71, 32440), (73, 32323),

Gene: Riyhil\_45 Start: 33094, Stop: 32288, Start Num: 2

Candidate Starts for Riyhil\_45:

(Start: 2 @33094 has 129 MA's), (14, 32968), (15, 32956), (18, 32932), (42, 32689), (43, 32683), (50, 32644), (60, 32563), (64, 32527), (69, 32497), (71, 32455), (73, 32338),

Gene: Robinson\_45 Start: 33082, Stop: 32276, Start Num: 2

Candidate Starts for Robinson\_45:

(Start: 2 @33082 has 129 MA's), (14, 32956), (15, 32944), (18, 32920), (42, 32677), (43, 32671), (50, 32632), (60, 32551), (64, 32515), (69, 32485), (71, 32443), (73, 32326),

Gene: Rog141\_44 Start: 32776, Stop: 31967, Start Num: 2

Candidate Starts for Rog141\_44:

(Start: 2 @32776 has 129 MA's), (14, 32650), (15, 32638), (18, 32614), (24, 32503), (43, 32365), (45, 32359), (60, 32242), (64, 32206), (69, 32176), (71, 32134), (72, 32059), (73, 32017),

Gene: RosieMae\_46 Start: 32831, Stop: 32025, Start Num: 2

Candidate Starts for RosieMae\_46:

(Start: 2 @32831 has 129 MA's), (14, 32705), (15, 32693), (18, 32669), (42, 32426), (43, 32420), (50, 32381), (60, 32300), (64, 32264), (69, 32234), (71, 32192), (73, 32075),

Gene: SJay\_45 Start: 33085, Stop: 32279, Start Num: 2

Candidate Starts for SJay\_45:

(Start: 2 @33085 has 129 MA's), (14, 32959), (15, 32947), (18, 32923), (42, 32680), (43, 32674), (46, 32662), (50, 32635), (60, 32554), (64, 32518), (69, 32488), (71, 32446), (72, 32371), (73, 32329),

Gene: Schnapsidee\_45 Start: 33045, Stop: 32140, Start Num: 2

Candidate Starts for Schnapsidee\_45:



(Start: 2 @33045 has 129 MA's), (4, 33009), (5, 32988), (10, 32946), (18, 32877), (25, 32760), (28, 32733), (38, 32595), (42, 32547), (43, 32541), (50, 32499), (59, 32421), (60, 32418), (64, 32382), (69, 32352), (71, 32310), (72, 32235),

Gene: Schubert\_42 Start: 31724, Stop: 30987, Start Num: 8

Candidate Starts for Schubert\_42:

(Start: 8 @31724 has 1 MA's), (13, 31679), (16, 31655), (23, 31571), (35, 31451), (39, 31403), (44, 31370), (51, 31322), (52, 31316), (56, 31274), (60, 31247), (64, 31211), (67, 31193), (68, 31187), (71, 31139),

Gene: Sedgewig\_44 Start: 32774, Stop: 31965, Start Num: 2

Candidate Starts for Sedgewig\_44:

(Start: 2 @32774 has 129 MA's), (14, 32648), (15, 32636), (18, 32612), (24, 32501), (43, 32363), (45, 32357), (60, 32240), (64, 32204), (69, 32174), (71, 32132), (72, 32057), (73, 32015),

Gene: ShaiHulud\_46 Start: 33100, Stop: 32294, Start Num: 2

Candidate Starts for ShaiHulud\_46:

(Start: 2 @33100 has 129 MA's), (14, 32974), (15, 32962), (18, 32938), (42, 32695), (43, 32689), (50, 32650), (60, 32569), (64, 32533), (69, 32503), (71, 32461), (72, 32386), (73, 32344),

Gene: Shee\_45 Start: 33081, Stop: 32275, Start Num: 2

Candidate Starts for Shee\_45:

(Start: 2 @33081 has 129 MA's), (14, 32955), (15, 32943), (18, 32919), (42, 32676), (43, 32670), (46, 32658), (50, 32631), (60, 32550), (64, 32514), (69, 32484), (71, 32442), (72, 32367), (73, 32325),

Gene: Sinatra\_43 Start: 31746, Stop: 30928, Start Num: 2

Candidate Starts for Sinatra\_43:

(Start: 2 @31746 has 129 MA's), (4, 31716), (5, 31695), (11, 31650), (14, 31620), (20, 31575), (24, 31488), (27, 31473), (29, 31458), (31, 31440), (37, 31377), (39, 31350), (41, 31335), (44, 31317), (47, 31305), (53, 31257), (58, 31212), (60, 31197), (64, 31161), (65, 31158), (66, 31146), (70, 31119), (71, 31089), (74, 30957), (75, 30933),

Gene: SirVictor\_43 Start: 31825, Stop: 30995, Start Num: 2

Candidate Starts for SirVictor\_43:

(Start: 2 @31825 has 129 MA's), (3, 31801), (4, 31771), (5, 31750), (6, 31741), (11, 31705), (14, 31675), (24, 31543), (29, 31516), (31, 31498), (37, 31435), (39, 31408), (41, 31393), (44, 31375), (47, 31363), (51, 31327), (60, 31255), (64, 31219), (65, 31216), (66, 31204), (70, 31177), (71, 31147), (74, 31015),

Gene: SoilGremlin\_46 Start: 33087, Stop: 32281, Start Num: 2

Candidate Starts for SoilGremlin\_46:

(Start: 2 @33087 has 129 MA's), (14, 32961), (15, 32949), (18, 32925), (42, 32682), (43, 32676), (46, 32664), (50, 32637), (60, 32556), (64, 32520), (69, 32490), (71, 32448), (72, 32373), (73, 32331),

Gene: SonOfLevi\_45 Start: 32804, Stop: 31998, Start Num: 2

Candidate Starts for SonOfLevi\_45:

(Start: 2 @32804 has 129 MA's), (14, 32678), (15, 32666), (18, 32642), (42, 32399), (43, 32393), (50, 32354), (60, 32273), (64, 32237), (69, 32207), (71, 32165), (73, 32048),

Gene: Stanktossa\_45 Start: 33084, Stop: 32278, Start Num: 2

Candidate Starts for Stanktossa\_45:

(Start: 2 @33084 has 129 MA's), (14, 32958), (15, 32946), (18, 32922), (42, 32679), (43, 32673), (46, 32661), (50, 32634), (60, 32553), (64, 32517), (69, 32487), (71, 32445), (72, 32370), (73, 32328),

Gene: StingRay\_44 Start: 32789, Stop: 31983, Start Num: 2

Candidate Starts for StingRay\_44:

(Start: 2 @32789 has 129 MA's), (14, 32663), (15, 32651), (18, 32627), (42, 32384), (43, 32378), (50, 32339), (60, 32258), (64, 32222), (69, 32192), (71, 32150), (73, 32033),

Gene: StirfryIV\_44 Start: 32785, Stop: 31976, Start Num: 2

Candidate Starts for StirfryIV\_44:

(Start: 2 @32785 has 129 MA's), (14, 32659), (15, 32647), (18, 32623), (24, 32512), (43, 32374), (45, 32368), (60, 32251), (64, 32215), (69, 32185), (71, 32143), (72, 32068), (73, 32026),

Gene: Stormbreaker8\_44 Start: 32921, Stop: 32016, Start Num: 2

Candidate Starts for Stormbreaker8\_44:

(Start: 2 @32921 has 129 MA's), (5, 32864), (10, 32822), (14, 32789), (18, 32753), (28, 32609), (38, 32471), (42, 32423), (43, 32417), (54, 32354), (55, 32351), (59, 32297), (64, 32258), (69, 32228), (71, 32186),

Gene: Strathdee\_45 Start: 33090, Stop: 32284, Start Num: 2

Candidate Starts for Strathdee\_45:

(Start: 2 @33090 has 129 MA's), (14, 32964), (15, 32952), (18, 32928), (42, 32685), (43, 32679), (50, 32640), (60, 32559), (64, 32523), (69, 32493), (71, 32451), (72, 32376), (73, 32334),

Gene: Superfresh\_45 Start: 33079, Stop: 32273, Start Num: 2

Candidate Starts for Superfresh\_45:

(Start: 2 @33079 has 129 MA's), (14, 32953), (15, 32941), (18, 32917), (42, 32674), (43, 32668), (50, 32629), (60, 32548), (64, 32512), (69, 32482), (71, 32440), (73, 32323),

Gene: Symere\_46 Start: 32784, Stop: 31975, Start Num: 2

Candidate Starts for Symere\_46:

(Start: 2 @32784 has 129 MA's), (14, 32658), (15, 32646), (18, 32622), (24, 32511), (43, 32373), (45, 32367), (60, 32250), (64, 32214), (69, 32184), (71, 32142), (72, 32067), (73, 32025),

Gene: TatarkaPM\_45 Start: 33094, Stop: 32288, Start Num: 2

Candidate Starts for TatarkaPM\_45:

(Start: 2 @33094 has 129 MA's), (14, 32968), (15, 32956), (18, 32932), (42, 32689), (43, 32683), (46, 32671), (50, 32644), (60, 32563), (64, 32527), (69, 32497), (71, 32455), (72, 32380), (73, 32338),

Gene: Teagan\_45 Start: 33084, Stop: 32278, Start Num: 2

Candidate Starts for Teagan\_45:

(Start: 2 @33084 has 129 MA's), (14, 32958), (15, 32946), (18, 32922), (42, 32679), (43, 32673), (50, 32634), (60, 32553), (64, 32517), (69, 32487), (71, 32445), (72, 32370), (73, 32328),

Gene: TeddyBear\_44 Start: 32786, Stop: 31980, Start Num: 2

Candidate Starts for TeddyBear\_44:

(Start: 2 @32786 has 129 MA's), (14, 32660), (15, 32648), (18, 32624), (42, 32381), (43, 32375), (50, 32336), (60, 32255), (64, 32219), (69, 32189), (71, 32147), (73, 32030),

Gene: Tenda\_44 Start: 32784, Stop: 31978, Start Num: 2

Candidate Starts for Tenda\_44:

(Start: 2 @32784 has 129 MA's), (14, 32658), (15, 32646), (18, 32622), (42, 32379), (43, 32373), (50, 32334), (60, 32253), (64, 32217), (69, 32187), (71, 32145), (73, 32028),

Gene: Thompsone\_45 Start: 33091, Stop: 32285, Start Num: 2

Candidate Starts for Thompsone\_45:

(Start: 2 @33091 has 129 MA's), (14, 32965), (15, 32953), (18, 32929), (42, 32686), (43, 32680), (50, 32641), (60, 32560), (64, 32524), (69, 32494), (71, 32452), (72, 32377), (73, 32335),

Gene: Thorongil\_45 Start: 32605, Stop: 31799, Start Num: 2

Candidate Starts for Thorongil\_45:

(Start: 2 @32605 has 129 MA's), (14, 32479), (15, 32467), (18, 32443), (42, 32200), (43, 32194), (50, 32155), (60, 32074), (64, 32038), (69, 32008), (71, 31966), (72, 31891), (73, 31849),

Gene: TinSulphur\_46 Start: 33090, Stop: 32284, Start Num: 2

Candidate Starts for TinSulphur\_46:

(Start: 2 @33090 has 129 MA's), (14, 32964), (15, 32952), (18, 32928), (42, 32685), (43, 32679), (46, 32667), (50, 32640), (60, 32559), (64, 32523), (69, 32493), (71, 32451), (72, 32376), (73, 32334),

Gene: Velene\_45 Start: 33089, Stop: 32283, Start Num: 2

Candidate Starts for Velene\_45:

(Start: 2 @33089 has 129 MA's), (14, 32963), (15, 32951), (18, 32927), (42, 32684), (43, 32678), (50, 32639), (60, 32558), (64, 32522), (69, 32492), (71, 32450), (72, 32375), (73, 32333),

Gene: Vispistious\_45 Start: 33091, Stop: 32285, Start Num: 2

Candidate Starts for Vispistious\_45:

(Start: 2 @33091 has 129 MA's), (14, 32965), (15, 32953), (18, 32929), (42, 32686), (43, 32680), (50, 32641), (60, 32560), (64, 32524), (69, 32494), (71, 32452), (72, 32377), (73, 32335),

Gene: WildNOut\_45 Start: 33087, Stop: 32281, Start Num: 2

Candidate Starts for WildNOut\_45:

(Start: 2 @33087 has 129 MA's), (14, 32961), (15, 32949), (18, 32925), (42, 32682), (43, 32676), (50, 32637), (60, 32556), (64, 32520), (69, 32490), (71, 32448), (72, 32373), (73, 32331),

Gene: Winzigespinne\_44 Start: 32772, Stop: 31966, Start Num: 2

Candidate Starts for Winzigespinne\_44:

(Start: 2 @32772 has 129 MA's), (14, 32646), (15, 32634), (18, 32610), (42, 32367), (43, 32361), (50, 32322), (60, 32241), (64, 32205), (69, 32175), (71, 32133), (73, 32016),

Gene: Zada\_46 Start: 33060, Stop: 32254, Start Num: 2

Candidate Starts for Zada\_46:

(Start: 2 @33060 has 129 MA's), (14, 32934), (15, 32922), (18, 32898), (42, 32655), (43, 32649), (46, 32637), (50, 32610), (60, 32529), (64, 32493), (69, 32463), (71, 32421), (72, 32346), (73, 32304),