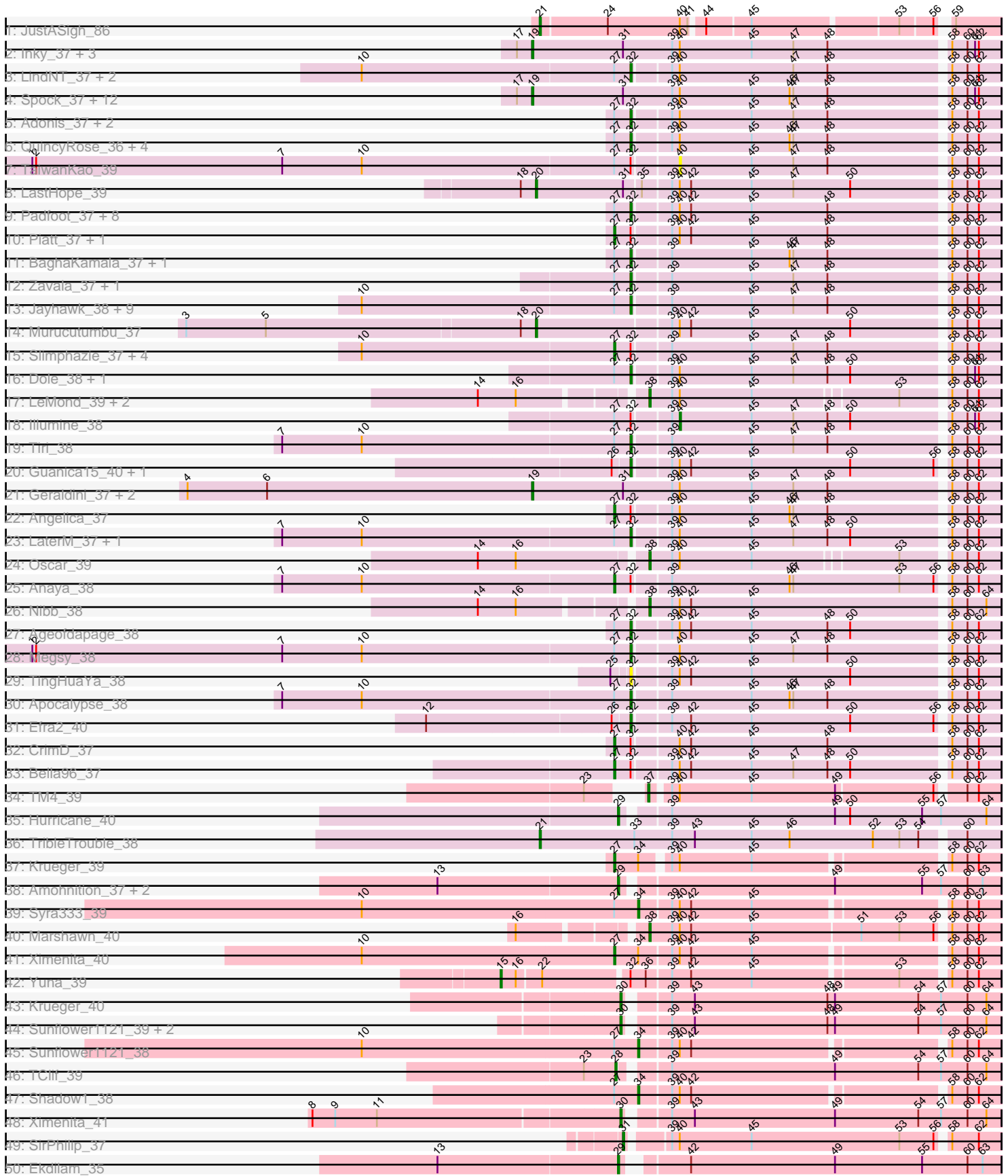


# Pham 182135



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 182135 Report

This analysis was run 11/02/24 on database version 579.

Pham number 182135 has 108 members, 2 are drafts.

Phages represented in each track:

- Track 1 : JustASigh\_86
- Track 2 : Inky\_37, Jeckyll\_37, Llorens\_37, Jarvi\_37
- Track 3 : LindNT\_37, TreyKay\_37, Prithvi\_37
- Track 4 : Spock\_37, Joy99\_37, Belladonna\_37, Peel\_37, Capricorn\_37, BGIlluviae\_37, Topper\_37, Dalmuri\_37, Twitch\_37, Rosmarinus\_37, Lunahalos\_37, CREW\_37, Homura\_37
- Track 5 : Adonis\_37, JAWS\_37, Ramen\_37
- Track 6 : QuincyRose\_36, Deby\_37, Sulley\_37, Ganymede\_38, MeaningOfLife\_37
- Track 7 : TaiwanKao\_39
- Track 8 : LastHope\_39
- Track 9 : Padfoot\_37, Asayake\_37, BEEST\_37, AlishaPH\_37, ShiaSurprise\_38, CaseJules\_38, Blizzard\_37, Durfee\_37, Boiii\_37
- Track 10 : Piatt\_37, Hyperbowlee\_37
- Track 11 : BaghaKamala\_37, CheetoDust\_37
- Track 12 : Zavala\_37, Mynx\_37
- Track 13 : Jayhawk\_38, HedwigODU\_37, Beezoo\_37, ActinUp\_37, Veliki\_37, Rapunzel97\_37, Atiba\_37, Padpat\_38, TruffulaTree\_37, Zabiza\_37
- Track 14 : Murucutumbu\_37
- Track 15 : Slimphazie\_37, Tachez\_37, Emerson\_38, BarrelRoll\_37, Adephagia\_37
- Track 16 : Dole\_38, Devera\_39
- Track 17 : LeMond\_39, KiSi\_39, Scarlett\_39
- Track 18 : Illumine\_38
- Track 19 : Tiri\_38
- Track 20 : Guanica15\_40, Yunkel11\_40
- Track 21 : Geraldini\_37, Pokerus\_36, YoureAdopted\_36
- Track 22 : Angelica\_37
- Track 23 : LaterM\_37, Stinson\_38
- Track 24 : Oscar\_39
- Track 25 : Anaya\_38
- Track 26 : Nibb\_38
- Track 27 : Ageofdapage\_38
- Track 28 : Megsy\_38
- Track 29 : TingHuaYa\_38
- Track 30 : Apocalypse\_38
- Track 31 : Efra2\_40
- Track 32 : CrimD\_37
- Track 33 : Bella96\_37

- Track 34 : TM4\_39
- Track 35 : Hurricane\_40
- Track 36 : TribbleTrouble\_38
- Track 37 : Krueger\_39
- Track 38 : Amohnition\_37, DarthP\_37, Hammy\_37
- Track 39 : Syra333\_39
- Track 40 : Marshawn\_40
- Track 41 : Ximenita\_40
- Track 42 : Yuna\_39
- Track 43 : Krueger\_40
- Track 44 : Sunflower1121\_39, Syra333\_40, Shadow1\_39
- Track 45 : Sunflower1121\_38
- Track 46 : TClif\_39
- Track 47 : Shadow1\_38
- Track 48 : Ximenita\_41
- Track 49 : SirPhilip\_37
- Track 50 : Ekdilam\_35

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

The start number called the most often in the published annotations is 32, it was called in 45 of the 106 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- ActinUp\_37, Adonis\_37, Ageofdapage\_38, AlishaPH\_37, Apocalypse\_38, Asayake\_37, Atiba\_37, BEEST\_37, BaghaKamala\_37, Beezoo\_37, Blizzard\_37, Boiiii\_37, CaseJules\_38, CheetoDust\_37, Deby\_37, Devera\_39, Dole\_38, Durfee\_37, Efra2\_40, Ganymede\_38, Guanica15\_40, HedwigODU\_37, JAWS\_37, Jayhawk\_38, LaterM\_37, LindNT\_37, MeaningOfLife\_37, Megsy\_38, Mynx\_37, Padfoot\_37, Padpat\_38, Prithvi\_37, QuincyRose\_36, Ramen\_37, Rapunzel97\_37, ShiaSurprise\_38, Stinson\_38, Sulley\_37, TingHuaYa\_38, Tiri\_38, TreyKay\_37, TruffulaTree\_37, Veliki\_37, Yunkel11\_40, Zabiza\_37, Zavala\_37,

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

- Adephagia\_37, Anaya\_38, Angelica\_37, BarrelRoll\_37, Bella96\_37, CrimD\_37, Emerson\_38, Hyperbowlee\_37, Illumine\_38, Piatt\_37, Slimphazie\_37, Tachez\_37, TaiwanKao\_39, Yuna\_39,

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

- Amohnition\_37, BGlluviae\_37, Belladonna\_37, CREW\_37, Capricorn\_37, Dalmuri\_37, DarthP\_37, Ekdilam\_35, Geraldini\_37, Hammy\_37, Homura\_37, Hurricane\_40, Inky\_37, Jarvi\_37, Jeckyll\_37, Joy99\_37, JustASigh\_86, KiSi\_39, Krueger\_39, Krueger\_40, LastHope\_39, LeMond\_39, Llorens\_37, Lunahalos\_37, Marshawn\_40, Murucutumbu\_37, Nibb\_38, Oscar\_39, Peel\_37, Pokerus\_36, Rosmarinus\_37, Scarlett\_39, Shadow1\_38, Shadow1\_39, SirPhilip\_37, Spock\_37, Sunflower1121\_38, Sunflower1121\_39, Syra333\_39, Syra333\_40, TClif\_39, TM4\_39, Topper\_37, TribbleTrouble\_38, Twitch\_37, Ximenita\_40, Ximenita\_41, YoureAdopted\_36,

**Summary by start number:**

Start 15:

- Found in 1 of 108 ( 0.9% ) of genes in pham
- Manual Annotations of this start: 1 of 106
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Yuna\_39 (K6),

Start 19:

- Found in 20 of 108 ( 18.5% ) of genes in pham
- Manual Annotations of this start: 20 of 106
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BGlluviae\_37 (K1), Belladonna\_37 (K1), CREW\_37 (K1), Capricorn\_37 (K1), Dalmuri\_37 (K1), Geraldini\_37 (K1), Homura\_37 (K1), Inky\_37 (K1), Jarvi\_37 (K1), Jeckyll\_37 (K1), Joy99\_37 (K1), Llorens\_37 (K1), Lunahalos\_37 (K1), Peel\_37 (K1), Pokerus\_36 (K1), Rosmarinus\_37 (K1), Spock\_37 (K1), Topper\_37 (K1), Twitch\_37 (K1), YoureAdopted\_36 (K1),

Start 20:

- Found in 2 of 108 ( 1.9% ) of genes in pham
- Manual Annotations of this start: 2 of 106
- Called 100.0% of time when present
- Phage (with cluster) where this start called: LastHope\_39 (K1), Murucutumbu\_37 (K1),

Start 21:

- Found in 2 of 108 ( 1.9% ) of genes in pham
- Manual Annotations of this start: 2 of 106
- Called 100.0% of time when present
- Phage (with cluster) where this start called: JustASigh\_86 (AH), TripleTrouble\_38 (K3),

Start 27:

- Found in 60 of 108 ( 55.6% ) of genes in pham
- Manual Annotations of this start: 13 of 106
- Called 21.7% of time when present
- Phage (with cluster) where this start called: Adephagia\_37 (K1), Anaya\_38 (K1), Angelica\_37 (K1), BarrelRoll\_37 (K1), Bella96\_37 (K1), CrimD\_37 (K1), Emerson\_38 (K1), Hyperbowlee\_37 (K1), Krueger\_39 (K6), Piatt\_37 (K1), Slimphazie\_37 (K1), Tachez\_37 (K1), Ximenita\_40 (K6),

Start 28:

- Found in 1 of 108 ( 0.9% ) of genes in pham
- Manual Annotations of this start: 1 of 106
- Called 100.0% of time when present
- Phage (with cluster) where this start called: TClif\_39 (K6),

Start 29:

- Found in 5 of 108 ( 4.6% ) of genes in pham
- Manual Annotations of this start: 5 of 106
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Amohnition\_37 (K6), DARTH\_37 (K6), Ekdilam\_35 (K6), Hammy\_37 (K6), Hurricane\_40 (K3),

Start 30:

- Found in 5 of 108 ( 4.6% ) of genes in pham
- Manual Annotations of this start: 5 of 106
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Krueger\_40 (K6), Shadow1\_39 (K6), Sunflower1121\_39 (K6), Syra333\_40 (K6), Ximenita\_41 (K6),

Start 31:

- Found in 22 of 108 ( 20.4% ) of genes in pham
- Manual Annotations of this start: 1 of 106
- Called 4.5% of time when present
- Phage (with cluster) where this start called: SirPhilip\_37 (K6),

Start 32:

- Found in 60 of 108 ( 55.6% ) of genes in pham
- Manual Annotations of this start: 45 of 106
- Called 76.7% of time when present
- Phage (with cluster) where this start called: ActinUp\_37 (K1), Adonis\_37 (K1), Ageofdapage\_38 (K1), AlishaPH\_37 (K1), Apocalypse\_38 (K1), Asayake\_37 (K1), Atiba\_37 (K1), BEEST\_37 (K1), BaghaKamala\_37 (K1), Beezoo\_37 (K1), Blizzard\_37 (K1), Boiiii\_37 (K1), CaseJules\_38 (K1), CheetoDust\_37 (K1), Deby\_37 (K1), Devera\_39 (K1), Dole\_38 (K1), Durfee\_37 (K1), Efra2\_40 (K1), Ganymede\_38 (K1), Guanica15\_40 (K1), HedwigODU\_37 (K1), JAWS\_37 (K1), Jayhawk\_38 (K1), LaterM\_37 (K1), LindNT\_37 (K1), MeaningOfLife\_37 (K1), Megsy\_38 (K1), Mynx\_37 (K1), Padfoot\_37 (K1), Padpat\_38 (K1), Prithvi\_37 (K1), QuincyRose\_36 (K1), Ramen\_37 (K1), Rapunzel97\_37 (K1), ShiaSurprise\_38 (K1), Stinson\_38 (K1), Sulley\_37 (K1), TingHuaYa\_38 (K1), Tiri\_38 (K1), TreyKay\_37 (K1), TruffulaTree\_37 (K1), Veliki\_37 (K1), Yunkel11\_40 (K1), Zabiza\_37 (K1), Zavala\_37 (K1),

Start 34:

- Found in 5 of 108 ( 4.6% ) of genes in pham
- Manual Annotations of this start: 3 of 106
- Called 60.0% of time when present
- Phage (with cluster) where this start called: Shadow1\_38 (K6), Sunflower1121\_38 (K6), Syra333\_39 (K6),

Start 37:

- Found in 1 of 108 ( 0.9% ) of genes in pham
- Manual Annotations of this start: 1 of 106
- Called 100.0% of time when present
- Phage (with cluster) where this start called: TM4\_39 (K2),

Start 38:

- Found in 6 of 108 ( 5.6% ) of genes in pham
- Manual Annotations of this start: 6 of 106
- Called 100.0% of time when present
- Phage (with cluster) where this start called: KiSi\_39 (K1), LeMond\_39 (K1), Marshawn\_40 (K6), Nibb\_38 (K1), Oscar\_39 (K1), Scarlett\_39 (K1),

Start 40:

- Found in 72 of 108 ( 66.7% ) of genes in pham
- Manual Annotations of this start: 1 of 106
- Called 2.8% of time when present

- Phage (with cluster) where this start called: Illumine\_38 (K1), TaiwanKao\_39 (K1),

### **Summary by clusters:**

There are 5 clusters represented in this pham: K3, AH, K1, K6, K2,

Info for manual annotations of cluster AH:

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

Info for manual annotations of cluster K1:

- Start number 19 was manually annotated 20 times for cluster K1.
- Start number 20 was manually annotated 2 times for cluster K1.
- Start number 27 was manually annotated 11 times for cluster K1.
- Start number 32 was manually annotated 45 times for cluster K1.
- Start number 38 was manually annotated 5 times for cluster K1.
- Start number 40 was manually annotated 1 time for cluster K1.

Info for manual annotations of cluster K2:

- Start number 37 was manually annotated 1 time for cluster K2.

Info for manual annotations of cluster K3:

- Start number 21 was manually annotated 1 time for cluster K3.
- Start number 29 was manually annotated 1 time for cluster K3.

Info for manual annotations of cluster K6:

- Start number 15 was manually annotated 1 time for cluster K6.
- Start number 27 was manually annotated 2 times for cluster K6.
- Start number 28 was manually annotated 1 time for cluster K6.
- Start number 29 was manually annotated 4 times for cluster K6.
- Start number 30 was manually annotated 5 times for cluster K6.
- Start number 31 was manually annotated 1 time for cluster K6.
- Start number 34 was manually annotated 3 times for cluster K6.
- Start number 38 was manually annotated 1 time for cluster K6.

### **Gene Information:**

Gene: ActinUp\_37 Start: 30191, Stop: 30469, Start Num: 32

Candidate Starts for ActinUp\_37:

(10, 29981), (Start: 27 @30179 has 13 MA's), (Start: 32 @30191 has 45 MA's), (39, 30218), (45, 30281), (47, 30314), (48, 30341), (58, 30431), (60, 30443), (62, 30452),

Gene: Adephagia\_37 Start: 30176, Stop: 30466, Start Num: 27

Candidate Starts for Adephagia\_37:

(10, 29978), (Start: 27 @30176 has 13 MA's), (Start: 32 @30188 has 45 MA's), (39, 30215), (45, 30278), (47, 30311), (48, 30338), (58, 30428), (60, 30440), (62, 30449),

Gene: Adonis\_37 Start: 30203, Stop: 30481, Start Num: 32

Candidate Starts for Adonis\_37:

(Start: 27 @30191 has 13 MA's), (Start: 32 @30203 has 45 MA's), (39, 30230), (Start: 40 @30236 has 1 MA's), (45, 30293), (47, 30326), (48, 30353), (58, 30443), (60, 30455), (62, 30464),

Gene: Ageofdapage\_38 Start: 30149, Stop: 30427, Start Num: 32

Candidate Starts for Ageofdapage\_38:

(Start: 27 @30137 has 13 MA's), (Start: 32 @30149 has 45 MA's), (39, 30176), (Start: 40 @30182 has 1 MA's), (42, 30191), (45, 30239), (48, 30299), (50, 30317), (58, 30389), (60, 30401), (62, 30410),

Gene: AlishaPH\_37 Start: 30181, Stop: 30459, Start Num: 32

Candidate Starts for AlishaPH\_37:

(Start: 27 @30169 has 13 MA's), (Start: 32 @30181 has 45 MA's), (39, 30208), (Start: 40 @30214 has 1 MA's), (42, 30223), (45, 30271), (48, 30331), (58, 30421), (60, 30433), (62, 30442),

Gene: Amohnition\_37 Start: 30719, Stop: 31009, Start Num: 29

Candidate Starts for Amohnition\_37:

(13, 30578), (Start: 29 @30719 has 5 MA's), (49, 30878), (55, 30947), (57, 30962), (60, 30983), (63, 30995),

Gene: Anaya\_38 Start: 30204, Stop: 30494, Start Num: 27

Candidate Starts for Anaya\_38:

(7, 29943), (10, 30006), (Start: 27 @30204 has 13 MA's), (Start: 32 @30216 has 45 MA's), (39, 30243), (46, 30336), (47, 30339), (53, 30423), (56, 30450), (58, 30456), (60, 30468), (62, 30477),

Gene: Angelica\_37 Start: 30126, Stop: 30416, Start Num: 27

Candidate Starts for Angelica\_37:

(Start: 27 @30126 has 13 MA's), (Start: 32 @30138 has 45 MA's), (39, 30165), (Start: 40 @30171 has 1 MA's), (45, 30228), (46, 30258), (47, 30261), (48, 30288), (58, 30378), (60, 30390), (62, 30399),

Gene: Apocalypse\_38 Start: 30159, Stop: 30437, Start Num: 32

Candidate Starts for Apocalypse\_38:

(7, 29886), (10, 29949), (Start: 27 @30147 has 13 MA's), (Start: 32 @30159 has 45 MA's), (39, 30186), (45, 30249), (46, 30279), (47, 30282), (48, 30309), (58, 30399), (60, 30411), (62, 30420),

Gene: Asayake\_37 Start: 30222, Stop: 30500, Start Num: 32

Candidate Starts for Asayake\_37:

(Start: 27 @30210 has 13 MA's), (Start: 32 @30222 has 45 MA's), (39, 30249), (Start: 40 @30255 has 1 MA's), (42, 30264), (45, 30312), (48, 30372), (58, 30462), (60, 30474), (62, 30483),

Gene: Atiba\_37 Start: 30151, Stop: 30429, Start Num: 32

Candidate Starts for Atiba\_37:

(10, 29941), (Start: 27 @30139 has 13 MA's), (Start: 32 @30151 has 45 MA's), (39, 30178), (45, 30241), (47, 30274), (48, 30301), (58, 30391), (60, 30403), (62, 30412),

Gene: BEEST\_37 Start: 30222, Stop: 30500, Start Num: 32

Candidate Starts for BEEST\_37:

(Start: 27 @30210 has 13 MA's), (Start: 32 @30222 has 45 MA's), (39, 30249), (Start: 40 @30255 has 1 MA's), (42, 30264), (45, 30312), (48, 30372), (58, 30462), (60, 30474), (62, 30483),

Gene: BGlluviae\_37 Start: 30222, Stop: 30584, Start Num: 19

Candidate Starts for BGlluviae\_37:

(17, 30210), (Start: 19 @30222 has 20 MA's), (Start: 31 @30294 has 1 MA's), (39, 30333), (Start: 40 @30339 has 1 MA's), (45, 30396), (46, 30426), (47, 30429), (48, 30456), (58, 30546), (60, 30558), (61, 30564), (62, 30567),

Gene: BaghaKamala\_37 Start: 30151, Stop: 30429, Start Num: 32

Candidate Starts for BaghaKamala\_37:

(Start: 27 @30139 has 13 MA's), (Start: 32 @30151 has 45 MA's), (39, 30178), (45, 30241), (46, 30271), (47, 30274), (48, 30301), (58, 30391), (60, 30403), (62, 30412),

Gene: BarrelRoll\_37 Start: 30162, Stop: 30452, Start Num: 27

Candidate Starts for BarrelRoll\_37:

(10, 29964), (Start: 27 @30162 has 13 MA's), (Start: 32 @30174 has 45 MA's), (39, 30201), (45, 30264), (47, 30297), (48, 30324), (58, 30414), (60, 30426), (62, 30435),

Gene: Beezoo\_37 Start: 30198, Stop: 30476, Start Num: 32

Candidate Starts for Beezoo\_37:

(10, 29988), (Start: 27 @30186 has 13 MA's), (Start: 32 @30198 has 45 MA's), (39, 30225), (45, 30288), (47, 30321), (48, 30348), (58, 30438), (60, 30450), (62, 30459),

Gene: Bella96\_37 Start: 30079, Stop: 30369, Start Num: 27

Candidate Starts for Bella96\_37:

(Start: 27 @30079 has 13 MA's), (Start: 32 @30091 has 45 MA's), (39, 30118), (Start: 40 @30124 has 1 MA's), (42, 30133), (45, 30181), (47, 30214), (48, 30241), (50, 30259), (58, 30331), (60, 30343), (62, 30352),

Gene: Belladonna\_37 Start: 30222, Stop: 30584, Start Num: 19

Candidate Starts for Belladonna\_37:

(17, 30210), (Start: 19 @30222 has 20 MA's), (Start: 31 @30294 has 1 MA's), (39, 30333), (Start: 40 @30339 has 1 MA's), (45, 30396), (46, 30426), (47, 30429), (48, 30456), (58, 30546), (60, 30558), (61, 30564), (62, 30567),

Gene: Blizzard\_37 Start: 30222, Stop: 30500, Start Num: 32

Candidate Starts for Blizzard\_37:

(Start: 27 @30210 has 13 MA's), (Start: 32 @30222 has 45 MA's), (39, 30249), (Start: 40 @30255 has 1 MA's), (42, 30264), (45, 30312), (48, 30372), (58, 30462), (60, 30474), (62, 30483),

Gene: Boiiii\_37 Start: 30224, Stop: 30502, Start Num: 32

Candidate Starts for Boiiii\_37:

(Start: 27 @30212 has 13 MA's), (Start: 32 @30224 has 45 MA's), (39, 30251), (Start: 40 @30257 has 1 MA's), (42, 30266), (45, 30314), (48, 30374), (58, 30464), (60, 30476), (62, 30485),

Gene: CREW\_37 Start: 30222, Stop: 30584, Start Num: 19

Candidate Starts for CREW\_37:

(17, 30210), (Start: 19 @30222 has 20 MA's), (Start: 31 @30294 has 1 MA's), (39, 30333), (Start: 40 @30339 has 1 MA's), (45, 30396), (46, 30426), (47, 30429), (48, 30456), (58, 30546), (60, 30558), (61, 30564), (62, 30567),

Gene: Capricorn\_37 Start: 30222, Stop: 30584, Start Num: 19

Candidate Starts for Capricorn\_37:

(17, 30210), (Start: 19 @30222 has 20 MA's), (Start: 31 @30294 has 1 MA's), (39, 30333), (Start: 40 @30339 has 1 MA's), (45, 30396), (46, 30426), (47, 30429), (48, 30456), (58, 30546), (60, 30558), (61, 30564), (62, 30567),

Gene: CaseJules\_38 Start: 30222, Stop: 30500, Start Num: 32

Candidate Starts for CaseJules\_38:

(Start: 27 @30210 has 13 MA's), (Start: 32 @30222 has 45 MA's), (39, 30249), (Start: 40 @30255 has 1 MA's), (42, 30264), (45, 30312), (48, 30372), (58, 30462), (60, 30474), (62, 30483),

Gene: CheetoDust\_37 Start: 30199, Stop: 30477, Start Num: 32



Candidate Starts for CheetoDust\_37:

(Start: 27 @30187 has 13 MA's), (Start: 32 @30199 has 45 MA's), (39, 30226), (45, 30289), (46, 30319), (47, 30322), (48, 30349), (58, 30439), (60, 30451), (62, 30460),

Gene: CrimD\_37 Start: 30145, Stop: 30435, Start Num: 27

Candidate Starts for CrimD\_37:

(Start: 27 @30145 has 13 MA's), (Start: 32 @30157 has 45 MA's), (Start: 40 @30190 has 1 MA's), (42, 30199), (45, 30247), (48, 30307), (58, 30397), (60, 30409), (62, 30418),

Gene: Dalmuri\_37 Start: 30222, Stop: 30584, Start Num: 19

Candidate Starts for Dalmuri\_37:

(17, 30210), (Start: 19 @30222 has 20 MA's), (Start: 31 @30294 has 1 MA's), (39, 30333), (Start: 40 @30339 has 1 MA's), (45, 30396), (46, 30426), (47, 30429), (48, 30456), (58, 30546), (60, 30558), (61, 30564), (62, 30567),

Gene: DarthP\_37 Start: 30641, Stop: 30931, Start Num: 29

Candidate Starts for DarthP\_37:

(13, 30500), (Start: 29 @30641 has 5 MA's), (49, 30800), (55, 30869), (57, 30884), (60, 30905), (63, 30917),

Gene: Deby\_37 Start: 30156, Stop: 30434, Start Num: 32

Candidate Starts for Deby\_37:

(Start: 27 @30144 has 13 MA's), (Start: 32 @30156 has 45 MA's), (39, 30183), (Start: 40 @30189 has 1 MA's), (45, 30246), (46, 30276), (47, 30279), (48, 30306), (58, 30396), (60, 30408), (62, 30417),

Gene: Devera\_39 Start: 30347, Stop: 30625, Start Num: 32

Candidate Starts for Devera\_39:

(Start: 27 @30335 has 13 MA's), (Start: 32 @30347 has 45 MA's), (39, 30374), (Start: 40 @30380 has 1 MA's), (45, 30437), (47, 30470), (48, 30497), (50, 30515), (58, 30587), (60, 30599), (61, 30605), (62, 30608),

Gene: Dole\_38 Start: 30349, Stop: 30627, Start Num: 32

Candidate Starts for Dole\_38:

(Start: 27 @30337 has 13 MA's), (Start: 32 @30349 has 45 MA's), (39, 30376), (Start: 40 @30382 has 1 MA's), (45, 30439), (47, 30472), (48, 30499), (50, 30517), (58, 30589), (60, 30601), (61, 30607), (62, 30610),

Gene: Durfee\_37 Start: 30222, Stop: 30500, Start Num: 32

Candidate Starts for Durfee\_37:

(Start: 27 @30210 has 13 MA's), (Start: 32 @30222 has 45 MA's), (39, 30249), (Start: 40 @30255 has 1 MA's), (42, 30264), (45, 30312), (48, 30372), (58, 30462), (60, 30474), (62, 30483),

Gene: Efra2\_40 Start: 30002, Stop: 30280, Start Num: 32

Candidate Starts for Efra2\_40:

(12, 29849), (26, 29990), (Start: 32 @30002 has 45 MA's), (39, 30029), (42, 30044), (45, 30092), (50, 30170), (56, 30236), (58, 30242), (60, 30254), (62, 30263),

Gene: Ekdilam\_35 Start: 30396, Stop: 30680, Start Num: 29

Candidate Starts for Ekdilam\_35:

(13, 30255), (Start: 29 @30396 has 5 MA's), (42, 30435), (49, 30549), (55, 30618), (60, 30654), (63, 30666),

Gene: Emerson\_38 Start: 30170, Stop: 30460, Start Num: 27

Candidate Starts for Emerson\_38:

(10, 29972), (Start: 27 @30170 has 13 MA's), (Start: 32 @30182 has 45 MA's), (39, 30209), (45, 30272), (47, 30305), (48, 30332), (58, 30422), (60, 30434), (62, 30443),

Gene: Ganymede\_38 Start: 30211, Stop: 30489, Start Num: 32

Candidate Starts for Ganymede\_38:

(Start: 27 @30199 has 13 MA's), (Start: 32 @30211 has 45 MA's), (39, 30238), (Start: 40 @30244 has 1 MA's), (45, 30301), (46, 30331), (47, 30334), (48, 30361), (58, 30451), (60, 30463), (62, 30472),

Gene: Geraldini\_37 Start: 30198, Stop: 30560, Start Num: 19

Candidate Starts for Geraldini\_37:

(4, 29925), (6, 29988), (Start: 19 @30198 has 20 MA's), (Start: 31 @30270 has 1 MA's), (39, 30309), (Start: 40 @30315 has 1 MA's), (45, 30372), (47, 30405), (48, 30432), (58, 30522), (60, 30534), (62, 30543),

Gene: Guanica15\_40 Start: 29958, Stop: 30236, Start Num: 32

Candidate Starts for Guanica15\_40:

(26, 29946), (Start: 32 @29958 has 45 MA's), (39, 29985), (Start: 40 @29991 has 1 MA's), (42, 30000), (45, 30048), (50, 30126), (56, 30192), (58, 30198), (60, 30210), (62, 30219),

Gene: Hammy\_37 Start: 30632, Stop: 30922, Start Num: 29

Candidate Starts for Hammy\_37:

(13, 30491), (Start: 29 @30632 has 5 MA's), (49, 30791), (55, 30860), (57, 30875), (60, 30896), (63, 30908),

Gene: HedwigODU\_37 Start: 30191, Stop: 30469, Start Num: 32

Candidate Starts for HedwigODU\_37:

(10, 29981), (Start: 27 @30179 has 13 MA's), (Start: 32 @30191 has 45 MA's), (39, 30218), (45, 30281), (47, 30314), (48, 30341), (58, 30431), (60, 30443), (62, 30452),

Gene: Homura\_37 Start: 30222, Stop: 30584, Start Num: 19

Candidate Starts for Homura\_37:

(17, 30210), (Start: 19 @30222 has 20 MA's), (Start: 31 @30294 has 1 MA's), (39, 30333), (Start: 40 @30339 has 1 MA's), (45, 30396), (46, 30426), (47, 30429), (48, 30456), (58, 30546), (60, 30558), (61, 30564), (62, 30567),

Gene: Hurricane\_40 Start: 31387, Stop: 31677, Start Num: 29

Candidate Starts for Hurricane\_40:

(Start: 29 @31387 has 5 MA's), (39, 31417), (49, 31546), (50, 31558), (55, 31615), (57, 31630), (64, 31666),

Gene: Hyperbowlee\_37 Start: 30210, Stop: 30500, Start Num: 27

Candidate Starts for Hyperbowlee\_37:

(Start: 27 @30210 has 13 MA's), (Start: 32 @30222 has 45 MA's), (39, 30249), (Start: 40 @30255 has 1 MA's), (42, 30264), (45, 30312), (48, 30372), (58, 30462), (60, 30474), (62, 30483),

Gene: Illumine\_38 Start: 30382, Stop: 30627, Start Num: 40

Candidate Starts for Illumine\_38:

(Start: 27 @30337 has 13 MA's), (Start: 32 @30349 has 45 MA's), (39, 30376), (Start: 40 @30382 has 1 MA's), (45, 30439), (47, 30472), (48, 30499), (50, 30517), (58, 30589), (60, 30601), (61, 30607), (62, 30610),

Gene: Inky\_37 Start: 30222, Stop: 30584, Start Num: 19

Candidate Starts for Inky\_37:

(17, 30210), (Start: 19 @30222 has 20 MA's), (Start: 31 @30294 has 1 MA's), (39, 30333), (Start: 40 @30339 has 1 MA's), (45, 30396), (47, 30429), (48, 30456), (58, 30546), (60, 30558), (61, 30564), (62, 30567),

Gene: JAWS\_37 Start: 30175, Stop: 30453, Start Num: 32

Candidate Starts for JAWS\_37:

(Start: 27 @30163 has 13 MA's), (Start: 32 @30175 has 45 MA's), (39, 30202), (Start: 40 @30208 has 1 MA's), (45, 30265), (47, 30298), (48, 30325), (58, 30415), (60, 30427), (62, 30436),

Gene: Jarvi\_37 Start: 30222, Stop: 30584, Start Num: 19

Candidate Starts for Jarvi\_37:

(17, 30210), (Start: 19 @30222 has 20 MA's), (Start: 31 @30294 has 1 MA's), (39, 30333), (Start: 40 @30339 has 1 MA's), (45, 30396), (47, 30429), (48, 30456), (58, 30546), (60, 30558), (61, 30564), (62, 30567),

Gene: Jayhawk\_38 Start: 30189, Stop: 30467, Start Num: 32

Candidate Starts for Jayhawk\_38:

(10, 29979), (Start: 27 @30177 has 13 MA's), (Start: 32 @30189 has 45 MA's), (39, 30216), (45, 30279), (47, 30312), (48, 30339), (58, 30429), (60, 30441), (62, 30450),

Gene: Jeckyll\_37 Start: 30222, Stop: 30584, Start Num: 19

Candidate Starts for Jeckyll\_37:

(17, 30210), (Start: 19 @30222 has 20 MA's), (Start: 31 @30294 has 1 MA's), (39, 30333), (Start: 40 @30339 has 1 MA's), (45, 30396), (47, 30429), (48, 30456), (58, 30546), (60, 30558), (61, 30564), (62, 30567),

Gene: Joy99\_37 Start: 30151, Stop: 30513, Start Num: 19

Candidate Starts for Joy99\_37:

(17, 30139), (Start: 19 @30151 has 20 MA's), (Start: 31 @30223 has 1 MA's), (39, 30262), (Start: 40 @30268 has 1 MA's), (45, 30325), (46, 30355), (47, 30358), (48, 30385), (58, 30475), (60, 30487), (61, 30493), (62, 30496),

Gene: JustASigh\_86 Start: 51554, Stop: 51225, Start Num: 21

Candidate Starts for JustASigh\_86:

(Start: 21 @51554 has 2 MA's), (24, 51503), (Start: 40 @51446 has 1 MA's), (41, 51440), (44, 51431), (45, 51398), (53, 51290), (56, 51266), (59, 51260),

Gene: KiSi\_39 Start: 30122, Stop: 30382, Start Num: 38

Candidate Starts for KiSi\_39:

(14, 30005), (16, 30035), (Start: 38 @30122 has 6 MA's), (39, 30140), (Start: 40 @30146 has 1 MA's), (45, 30203), (53, 30311), (58, 30344), (60, 30356), (62, 30365),

Gene: Krueger\_39 Start: 29701, Stop: 29979, Start Num: 27

Candidate Starts for Krueger\_39:

(Start: 27 @29701 has 13 MA's), (Start: 34 @29719 has 3 MA's), (39, 29737), (Start: 40 @29743 has 1 MA's), (45, 29800), (58, 29941), (60, 29953), (62, 29962),

Gene: Krueger\_40 Start: 29976, Stop: 30263, Start Num: 30

Candidate Starts for Krueger\_40:

(Start: 30 @29976 has 5 MA's), (39, 30003), (43, 30021), (48, 30126), (49, 30132), (54, 30198), (57, 30216), (60, 30237), (64, 30252),

Gene: LastHope\_39 Start: 29713, Stop: 30066, Start Num: 20

Candidate Starts for LastHope\_39:

(18, 29701), (Start: 20 @29713 has 2 MA's), (Start: 31 @29782 has 1 MA's), (35, 29794), (39, 29815), (Start: 40 @29821 has 1 MA's), (42, 29830), (45, 29878), (47, 29911), (50, 29956), (58, 30028), (60, 30040), (62, 30049),

Gene: LaterM\_37 Start: 30136, Stop: 30414, Start Num: 32

Candidate Starts for LaterM\_37:

(7, 29863), (10, 29926), (Start: 27 @30124 has 13 MA's), (Start: 32 @30136 has 45 MA's), (39, 30163), (Start: 40 @30169 has 1 MA's), (45, 30226), (47, 30259), (48, 30286), (50, 30304), (58, 30376), (60, 30388), (62, 30397),

Gene: LeMond\_39 Start: 30193, Stop: 30453, Start Num: 38

Candidate Starts for LeMond\_39:

(14, 30076), (16, 30106), (Start: 38 @30193 has 6 MA's), (39, 30211), (Start: 40 @30217 has 1 MA's), (45, 30274), (53, 30382), (58, 30415), (60, 30427), (62, 30436),

Gene: LindNT\_37 Start: 30152, Stop: 30430, Start Num: 32

Candidate Starts for LindNT\_37:

(10, 29942), (Start: 27 @30140 has 13 MA's), (Start: 32 @30152 has 45 MA's), (39, 30179), (Start: 40 @30185 has 1 MA's), (47, 30275), (48, 30302), (58, 30392), (60, 30404), (62, 30413),

Gene: Llorens\_37 Start: 30222, Stop: 30584, Start Num: 19

Candidate Starts for Llorens\_37:

(17, 30210), (Start: 19 @30222 has 20 MA's), (Start: 31 @30294 has 1 MA's), (39, 30333), (Start: 40 @30339 has 1 MA's), (45, 30396), (47, 30429), (48, 30456), (58, 30546), (60, 30558), (61, 30564), (62, 30567),

Gene: Lunahalos\_37 Start: 30222, Stop: 30584, Start Num: 19

Candidate Starts for Lunahalos\_37:

(17, 30210), (Start: 19 @30222 has 20 MA's), (Start: 31 @30294 has 1 MA's), (39, 30333), (Start: 40 @30339 has 1 MA's), (45, 30396), (46, 30426), (47, 30429), (48, 30456), (58, 30546), (60, 30558), (61, 30564), (62, 30567),

Gene: Marshawn\_40 Start: 30498, Stop: 30764, Start Num: 38

Candidate Starts for Marshawn\_40:

(16, 30411), (Start: 38 @30498 has 6 MA's), (39, 30516), (Start: 40 @30522 has 1 MA's), (42, 30531), (45, 30579), (51, 30663), (53, 30693), (56, 30720), (58, 30726), (60, 30738), (62, 30747),

Gene: MeaningOfLife\_37 Start: 30167, Stop: 30445, Start Num: 32

Candidate Starts for MeaningOfLife\_37:

(Start: 27 @30155 has 13 MA's), (Start: 32 @30167 has 45 MA's), (39, 30194), (Start: 40 @30200 has 1 MA's), (45, 30257), (46, 30287), (47, 30290), (48, 30317), (58, 30407), (60, 30419), (62, 30428),

Gene: Megsy\_38 Start: 30155, Stop: 30433, Start Num: 32

Candidate Starts for Megsy\_38:

(1, 29684), (2, 29687), (7, 29882), (10, 29945), (Start: 27 @30143 has 13 MA's), (Start: 32 @30155 has 45 MA's), (Start: 40 @30188 has 1 MA's), (45, 30245), (47, 30278), (48, 30305), (58, 30395), (60, 30407), (62, 30416),

Gene: Murucutumbu\_37 Start: 30155, Stop: 30508, Start Num: 20

Candidate Starts for Murucutumbu\_37:

(3, 29882), (5, 29945), (18, 30143), (Start: 20 @30155 has 2 MA's), (39, 30257), (Start: 40 @30263 has 1 MA's), (42, 30272), (45, 30320), (50, 30398), (58, 30470), (60, 30482), (62, 30491),

Gene: Mynx\_37 Start: 30204, Stop: 30482, Start Num: 32

Candidate Starts for Mynx\_37:

(Start: 27 @30192 has 13 MA's), (Start: 32 @30204 has 45 MA's), (39, 30231), (45, 30294), (47, 30327), (48, 30354), (58, 30444), (60, 30456), (62, 30465),

Gene: Nibb\_38 Start: 29650, Stop: 29919, Start Num: 38

Candidate Starts for Nibb\_38:

(14, 29533), (16, 29563), (Start: 38 @29650 has 6 MA's), (39, 29668), (Start: 40 @29674 has 1 MA's), (42, 29683), (45, 29731), (58, 29881), (60, 29893), (64, 29908),

Gene: Oscar\_39 Start: 30204, Stop: 30464, Start Num: 38

Candidate Starts for Oscar\_39:

(14, 30078), (16, 30108), (Start: 38 @30204 has 6 MA's), (39, 30222), (Start: 40 @30228 has 1 MA's), (45, 30285), (53, 30393), (58, 30426), (60, 30438), (62, 30447),

Gene: Padfoot\_37 Start: 30222, Stop: 30500, Start Num: 32

Candidate Starts for Padfoot\_37:

(Start: 27 @30210 has 13 MA's), (Start: 32 @30222 has 45 MA's), (39, 30249), (Start: 40 @30255 has 1 MA's), (42, 30264), (45, 30312), (48, 30372), (58, 30462), (60, 30474), (62, 30483),

Gene: Padpat\_38 Start: 30182, Stop: 30460, Start Num: 32

Candidate Starts for Padpat\_38:

(10, 29972), (Start: 27 @30170 has 13 MA's), (Start: 32 @30182 has 45 MA's), (39, 30209), (45, 30272), (47, 30305), (48, 30332), (58, 30422), (60, 30434), (62, 30443),

Gene: Peel\_37 Start: 30224, Stop: 30586, Start Num: 19

Candidate Starts for Peel\_37:

(17, 30212), (Start: 19 @30224 has 20 MA's), (Start: 31 @30296 has 1 MA's), (39, 30335), (Start: 40 @30341 has 1 MA's), (45, 30398), (46, 30428), (47, 30431), (48, 30458), (58, 30548), (60, 30560), (61, 30566), (62, 30569),

Gene: Piatt\_37 Start: 30210, Stop: 30500, Start Num: 27

Candidate Starts for Piatt\_37:

(Start: 27 @30210 has 13 MA's), (Start: 32 @30222 has 45 MA's), (39, 30249), (Start: 40 @30255 has 1 MA's), (42, 30264), (45, 30312), (48, 30372), (58, 30462), (60, 30474), (62, 30483),

Gene: Pokerus\_36 Start: 30138, Stop: 30500, Start Num: 19

Candidate Starts for Pokerus\_36:

(4, 29865), (6, 29928), (Start: 19 @30138 has 20 MA's), (Start: 31 @30210 has 1 MA's), (39, 30249), (Start: 40 @30255 has 1 MA's), (45, 30312), (47, 30345), (48, 30372), (58, 30462), (60, 30474), (62, 30483),

Gene: Prithvi\_37 Start: 30152, Stop: 30430, Start Num: 32

Candidate Starts for Prithvi\_37:

(10, 29942), (Start: 27 @30140 has 13 MA's), (Start: 32 @30152 has 45 MA's), (39, 30179), (Start: 40 @30185 has 1 MA's), (47, 30275), (48, 30302), (58, 30392), (60, 30404), (62, 30413),

Gene: QuincyRose\_36 Start: 30211, Stop: 30489, Start Num: 32

Candidate Starts for QuincyRose\_36:

(Start: 27 @30199 has 13 MA's), (Start: 32 @30211 has 45 MA's), (39, 30238), (Start: 40 @30244 has 1 MA's), (45, 30301), (46, 30331), (47, 30334), (48, 30361), (58, 30451), (60, 30463), (62, 30472),

Gene: Ramen\_37 Start: 30187, Stop: 30465, Start Num: 32

Candidate Starts for Ramen\_37:

(Start: 27 @30175 has 13 MA's), (Start: 32 @30187 has 45 MA's), (39, 30214), (Start: 40 @30220 has 1 MA's), (45, 30277), (47, 30310), (48, 30337), (58, 30427), (60, 30439), (62, 30448),

Gene: Rapunzel97\_37 Start: 30189, Stop: 30467, Start Num: 32

Candidate Starts for Rapunzel97\_37:

(10, 29979), (Start: 27 @30177 has 13 MA's), (Start: 32 @30189 has 45 MA's), (39, 30216), (45, 30279), (47, 30312), (48, 30339), (58, 30429), (60, 30441), (62, 30450),

Gene: Rosmarinus\_37 Start: 30210, Stop: 30572, Start Num: 19

Candidate Starts for Rosmarinus\_37:

(17, 30198), (Start: 19 @30210 has 20 MA's), (Start: 31 @30282 has 1 MA's), (39, 30321), (Start: 40 @30327 has 1 MA's), (45, 30384), (46, 30414), (47, 30417), (48, 30444), (58, 30534), (60, 30546), (61, 30552), (62, 30555),

Gene: Scarlett\_39 Start: 30195, Stop: 30455, Start Num: 38

Candidate Starts for Scarlett\_39:

(14, 30078), (16, 30108), (Start: 38 @30195 has 6 MA's), (39, 30213), (Start: 40 @30219 has 1 MA's), (45, 30276), (53, 30384), (58, 30417), (60, 30429), (62, 30438),

Gene: Shadow1\_38 Start: 29622, Stop: 29888, Start Num: 34

Candidate Starts for Shadow1\_38:

(Start: 27 @29604 has 13 MA's), (Start: 34 @29622 has 3 MA's), (39, 29646), (Start: 40 @29652 has 1 MA's), (42, 29661), (58, 29850), (60, 29862), (62, 29871),

Gene: Shadow1\_39 Start: 29885, Stop: 30172, Start Num: 30

Candidate Starts for Shadow1\_39:

(Start: 30 @29885 has 5 MA's), (39, 29912), (43, 29930), (48, 30035), (49, 30041), (54, 30107), (57, 30125), (60, 30146), (64, 30161),

Gene: ShiaSurprise\_38 Start: 30222, Stop: 30500, Start Num: 32

Candidate Starts for ShiaSurprise\_38:

(Start: 27 @30210 has 13 MA's), (Start: 32 @30222 has 45 MA's), (39, 30249), (Start: 40 @30255 has 1 MA's), (42, 30264), (45, 30312), (48, 30372), (58, 30462), (60, 30474), (62, 30483),

Gene: SirPhilip\_37 Start: 29126, Stop: 29404, Start Num: 31

Candidate Starts for SirPhilip\_37:

(Start: 31 @29126 has 1 MA's), (39, 29153), (Start: 40 @29159 has 1 MA's), (45, 29216), (53, 29333), (56, 29360), (58, 29366), (62, 29387),

Gene: Slimphazie\_37 Start: 30177, Stop: 30467, Start Num: 27

Candidate Starts for Slimphazie\_37:

(10, 29979), (Start: 27 @30177 has 13 MA's), (Start: 32 @30189 has 45 MA's), (39, 30216), (45, 30279), (47, 30312), (48, 30339), (58, 30429), (60, 30441), (62, 30450),

Gene: Spock\_37 Start: 30222, Stop: 30584, Start Num: 19

Candidate Starts for Spock\_37:

(17, 30210), (Start: 19 @30222 has 20 MA's), (Start: 31 @30294 has 1 MA's), (39, 30333), (Start: 40 @30339 has 1 MA's), (45, 30396), (46, 30426), (47, 30429), (48, 30456), (58, 30546), (60, 30558),

(61, 30564), (62, 30567),

Gene: Stinson\_38 Start: 30424, Stop: 30702, Start Num: 32

Candidate Starts for Stinson\_38:

(7, 30151), (10, 30214), (Start: 27 @30412 has 13 MA's), (Start: 32 @30424 has 45 MA's), (39, 30451), (Start: 40 @30457 has 1 MA's), (45, 30514), (47, 30547), (48, 30574), (50, 30592), (58, 30664), (60, 30676), (62, 30685),

Gene: Sulley\_37 Start: 30155, Stop: 30433, Start Num: 32

Candidate Starts for Sulley\_37:

(Start: 27 @30143 has 13 MA's), (Start: 32 @30155 has 45 MA's), (39, 30182), (Start: 40 @30188 has 1 MA's), (45, 30245), (46, 30275), (47, 30278), (48, 30305), (58, 30395), (60, 30407), (62, 30416),

Gene: Sunflower1121\_39 Start: 29978, Stop: 30265, Start Num: 30

Candidate Starts for Sunflower1121\_39:

(Start: 30 @29978 has 5 MA's), (39, 30005), (43, 30023), (48, 30128), (49, 30134), (54, 30200), (57, 30218), (60, 30239), (64, 30254),

Gene: Sunflower1121\_38 Start: 29715, Stop: 29981, Start Num: 34

Candidate Starts for Sunflower1121\_38:

(10, 29499), (Start: 27 @29697 has 13 MA's), (Start: 34 @29715 has 3 MA's), (39, 29739), (Start: 40 @29745 has 1 MA's), (42, 29754), (58, 29943), (60, 29955), (62, 29964),

Gene: Syra333\_39 Start: 29641, Stop: 29907, Start Num: 34

Candidate Starts for Syra333\_39:

(10, 29425), (Start: 27 @29623 has 13 MA's), (Start: 34 @29641 has 3 MA's), (39, 29665), (Start: 40 @29671 has 1 MA's), (42, 29680), (45, 29728), (58, 29869), (60, 29881), (62, 29890),

Gene: Syra333\_40 Start: 29904, Stop: 30191, Start Num: 30

Candidate Starts for Syra333\_40:

(Start: 30 @29904 has 5 MA's), (39, 29931), (43, 29949), (48, 30054), (49, 30060), (54, 30126), (57, 30144), (60, 30165), (64, 30180),

Gene: TClif\_39 Start: 30095, Stop: 30385, Start Num: 28

Candidate Starts for TClif\_39:

(23, 30071), (Start: 28 @30095 has 1 MA's), (39, 30125), (49, 30254), (54, 30320), (57, 30338), (60, 30359), (64, 30374),

Gene: TM4\_39 Start: 29584, Stop: 29844, Start Num: 37

Candidate Starts for TM4\_39:

(23, 29560), (Start: 37 @29584 has 1 MA's), (39, 29596), (Start: 40 @29602 has 1 MA's), (45, 29659), (49, 29725), (56, 29800), (60, 29818), (62, 29827),

Gene: Tachez\_37 Start: 30139, Stop: 30429, Start Num: 27

Candidate Starts for Tachez\_37:

(10, 29941), (Start: 27 @30139 has 13 MA's), (Start: 32 @30151 has 45 MA's), (39, 30178), (45, 30241), (47, 30274), (48, 30301), (58, 30391), (60, 30403), (62, 30412),

Gene: TaiwanKao\_39 Start: 30185, Stop: 30430, Start Num: 40

Candidate Starts for TaiwanKao\_39:

(1, 29681), (2, 29684), (7, 29879), (10, 29942), (Start: 27 @30140 has 13 MA's), (Start: 32 @30152 has 45 MA's), (Start: 40 @30185 has 1 MA's), (45, 30242), (47, 30275), (48, 30302), (58, 30392), (60, 30404), (62, 30413),

Gene: TingHuaYa\_38 Start: 29567, Stop: 29845, Start Num: 32

Candidate Starts for TingHuaYa\_38:

(25, 29555), (Start: 32 @29567 has 45 MA's), (39, 29594), (Start: 40 @29600 has 1 MA's), (42, 29609), (45, 29657), (50, 29735), (58, 29807), (60, 29819), (62, 29828),

Gene: Tiri\_38 Start: 30203, Stop: 30481, Start Num: 32

Candidate Starts for Tiri\_38:

(7, 29930), (10, 29993), (Start: 27 @30191 has 13 MA's), (Start: 32 @30203 has 45 MA's), (39, 30230), (45, 30293), (47, 30326), (48, 30353), (58, 30443), (60, 30455), (62, 30464),

Gene: Topper\_37 Start: 30222, Stop: 30584, Start Num: 19

Candidate Starts for Topper\_37:

(17, 30210), (Start: 19 @30222 has 20 MA's), (Start: 31 @30294 has 1 MA's), (39, 30333), (Start: 40 @30339 has 1 MA's), (45, 30396), (46, 30426), (47, 30429), (48, 30456), (58, 30546), (60, 30558), (61, 30564), (62, 30567),

Gene: TreyKay\_37 Start: 30152, Stop: 30430, Start Num: 32

Candidate Starts for TreyKay\_37:

(10, 29942), (Start: 27 @30140 has 13 MA's), (Start: 32 @30152 has 45 MA's), (39, 30179), (Start: 40 @30185 has 1 MA's), (47, 30275), (48, 30302), (58, 30392), (60, 30404), (62, 30413),

Gene: TribbleTrouble\_38 Start: 31008, Stop: 31364, Start Num: 21

Candidate Starts for TribbleTrouble\_38:

(Start: 21 @31008 has 2 MA's), (33, 31083), (39, 31113), (43, 31131), (45, 31176), (46, 31206), (52, 31272), (53, 31293), (54, 31308), (60, 31338),

Gene: TruffulaTree\_37 Start: 30185, Stop: 30463, Start Num: 32

Candidate Starts for TruffulaTree\_37:

(10, 29975), (Start: 27 @30173 has 13 MA's), (Start: 32 @30185 has 45 MA's), (39, 30212), (45, 30275), (47, 30308), (48, 30335), (58, 30425), (60, 30437), (62, 30446),

Gene: Twitch\_37 Start: 30224, Stop: 30586, Start Num: 19

Candidate Starts for Twitch\_37:

(17, 30212), (Start: 19 @30224 has 20 MA's), (Start: 31 @30296 has 1 MA's), (39, 30335), (Start: 40 @30341 has 1 MA's), (45, 30398), (46, 30428), (47, 30431), (48, 30458), (58, 30548), (60, 30560), (61, 30566), (62, 30569),

Gene: Veliki\_37 Start: 30225, Stop: 30503, Start Num: 32

Candidate Starts for Veliki\_37:

(10, 30015), (Start: 27 @30213 has 13 MA's), (Start: 32 @30225 has 45 MA's), (39, 30252), (45, 30315), (47, 30348), (48, 30375), (58, 30465), (60, 30477), (62, 30486),

Gene: Ximenita\_40 Start: 29808, Stop: 30092, Start Num: 27

Candidate Starts for Ximenita\_40:

(10, 29610), (Start: 27 @29808 has 13 MA's), (Start: 34 @29826 has 3 MA's), (39, 29850), (Start: 40 @29856 has 1 MA's), (42, 29865), (45, 29913), (58, 30054), (60, 30066), (62, 30075),

Gene: Ximenita\_41 Start: 30089, Stop: 30376, Start Num: 30

Candidate Starts for Ximenita\_41:

(8, 29852), (9, 29870), (11, 29903), (Start: 30 @30089 has 5 MA's), (39, 30116), (43, 30134), (49, 30245), (54, 30311), (57, 30329), (60, 30350), (64, 30365),



Gene: YoureAdopted\_36 Start: 30156, Stop: 30518, Start Num: 19

Candidate Starts for YoureAdopted\_36:

(4, 29883), (6, 29946), (Start: 19 @30156 has 20 MA's), (Start: 31 @30228 has 1 MA's), (39, 30267), (Start: 40 @30273 has 1 MA's), (45, 30330), (47, 30363), (48, 30390), (58, 30480), (60, 30492), (62, 30501),

Gene: Yuna\_39 Start: 30171, Stop: 30536, Start Num: 15

Candidate Starts for Yuna\_39:

(Start: 15 @30171 has 1 MA's), (16, 30183), (22, 30201), (Start: 32 @30264 has 45 MA's), (36, 30276), (39, 30294), (42, 30309), (45, 30357), (53, 30465), (58, 30498), (60, 30510), (62, 30519),

Gene: Yunkel11\_40 Start: 29957, Stop: 30235, Start Num: 32

Candidate Starts for Yunkel11\_40:

(26, 29945), (Start: 32 @29957 has 45 MA's), (39, 29984), (Start: 40 @29990 has 1 MA's), (42, 29999), (45, 30047), (50, 30125), (56, 30191), (58, 30197), (60, 30209), (62, 30218),

Gene: Zabiza\_37 Start: 30189, Stop: 30467, Start Num: 32

Candidate Starts for Zabiza\_37:

(10, 29979), (Start: 27 @30177 has 13 MA's), (Start: 32 @30189 has 45 MA's), (39, 30216), (45, 30279), (47, 30312), (48, 30339), (58, 30429), (60, 30441), (62, 30450),

Gene: Zavala\_37 Start: 30163, Stop: 30441, Start Num: 32

Candidate Starts for Zavala\_37:

(Start: 27 @30151 has 13 MA's), (Start: 32 @30163 has 45 MA's), (39, 30190), (45, 30253), (47, 30286), (48, 30313), (58, 30403), (60, 30415), (62, 30424),