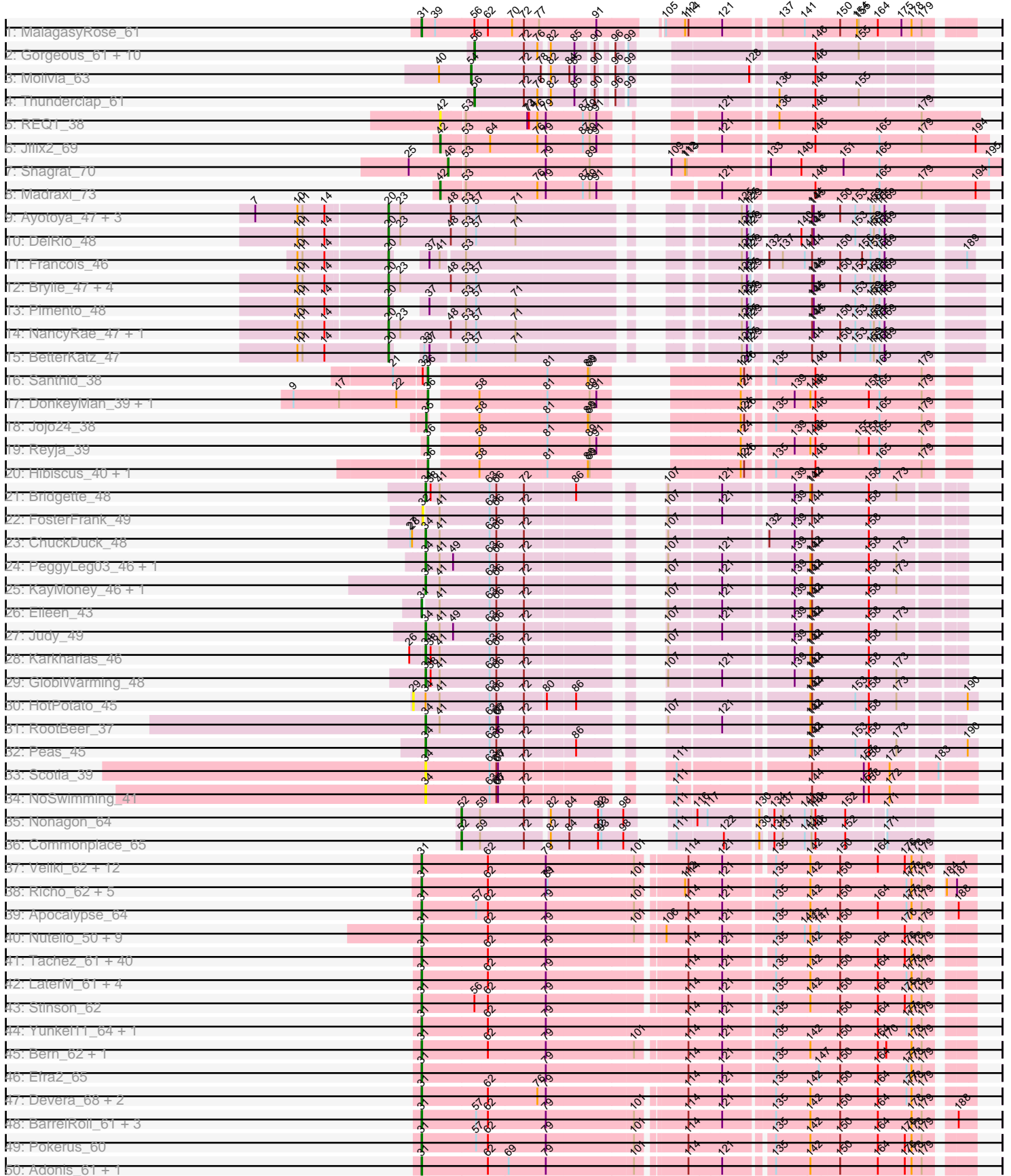


Pham 215792





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 215792 Report

This analysis was run 02/22/25 on database version 588.

Pham number 215792 has 252 members, 32 are drafts.

Phages represented in each track:

- Track 1 : MalagasyRose\_61
- Track 2 : Gorgeous\_61, Rings\_62, Jaek\_61, Amigo\_62, Heylee\_64, Ichor\_61, SorJuana\_61, Amavida\_63, Yeezus\_61, Boersma\_64, Anansi\_61
- Track 3 : Molivia\_63
- Track 4 : Thunderclap\_61
- Track 5 : REQ1\_38
- Track 6 : Jflix2\_69
- Track 7 : Shagrat\_70
- Track 8 : Madraxi\_73
- Track 9 : Ayotoya\_47, Hamood\_47, Chop\_47, GrandSlam\_47
- Track 10 : DelRio\_48
- Track 11 : Francois\_46
- Track 12 : Brylie\_47, WheatThin\_47, Mulch\_47, Nadeem\_47, Parada\_47
- Track 13 : Pimento\_48
- Track 14 : NancyRae\_47, Bock\_47
- Track 15 : BetterKatz\_47
- Track 16 : Santhid\_38
- Track 17 : DonkeyMan\_39, Tarzan\_39
- Track 18 : Jojo24\_38
- Track 19 : Reyja\_39
- Track 20 : Hibiscus\_40, Heinz\_40
- Track 21 : Bridgette\_48
- Track 22 : FosterFrank\_49
- Track 23 : ChuckDuck\_48
- Track 24 : PeggyLeg03\_46, Pucara\_43
- Track 25 : KayMoney\_46, Constance\_46
- Track 26 : Eileen\_43
- Track 27 : Judy\_49
- Track 28 : Karkharias\_46
- Track 29 : GlobiWarming\_48
- Track 30 : HotPotato\_45
- Track 31 : RootBeer\_37
- Track 32 : Peas\_45
- Track 33 : Scotia\_39
- Track 34 : NoSwimming\_41
- Track 35 : Nonagon\_64
- Track 36 : Commonplace\_65

- Track 37 : Veliki\_62, Emerson\_62, Ganymede\_62, Clipper\_65, MacKat\_56, QuincyRose\_60, YoureAdopted\_60, Beezoo\_63, JAWS\_61, Padpat\_63, Mynx\_62, Anaya\_63, Geraldini\_64
- Track 38 : Richo\_62, Dartin\_62, Niklas\_62, Shaobing\_62, McMater\_62, Peanam\_62
- Track 39 : Apocalypse\_64
- Track 40 : Nutello\_50, Teejan\_52, SgtBeansprout\_50, Amelie\_50, Nikao\_53, Torres\_52, Binglebops\_50, LilPharaoh\_50, Enkosi\_52, Mdavu\_51
- Track 41 : Tachez\_61, BGlluviae\_61, Jarvi\_61, TiniBug\_62, Blizzard\_61, DrHayes\_62, Atiba\_62, Hyperbowlee\_61, Adephagia\_61, LindNT\_60, TreyKay\_62, Llorens\_61, Homura\_61, CaseJules\_63, Spock\_61, Capricorn\_61, Rosmarinus\_61, ShiaSurprise\_62, Lunahalos\_61, Boiiii\_61, Bella96\_62, SamuelLPlaqson\_62, Joy99\_61, CrimD\_62, Urkel\_62, Padfoot\_61, Durfee\_61, Peel\_61, Belladonna\_61, Topper\_61, Piatt\_61, Dalmuri\_61, Inky\_61, CallaLilly\_63, Jeckyll\_61, Twitch\_61, AlishaPH\_61, BEEST\_61, CREW\_61, Asayake\_61, Prithvi\_62
- Track 42 : LaterM\_61, Ageofdapage\_64, Megsy\_63, Sulley\_61, Murucutumbu\_62
- Track 43 : Stinson\_62
- Track 44 : Yunkel11\_64, Guanica15\_64
- Track 45 : Bern\_62, CheetoDust\_60
- Track 46 : Efra2\_65
- Track 47 : Devera\_68, Dole\_66, Illumine\_66
- Track 48 : BarrelRoll\_61, Rapunzel97\_62, TruffulaTree\_61, Slimphazie\_61
- Track 49 : Pokerus\_60
- Track 50 : Adonis\_61, Zavala\_63
- Track 51 : Deby\_61
- Track 52 : TaiwanKao\_63
- Track 53 : Chavito\_62
- Track 54 : Angelica\_61
- Track 55 : Tiri\_62
- Track 56 : KiSi\_65, Scarlett\_65
- Track 57 : Jayhawk\_62
- Track 58 : Oscar\_64
- Track 59 : TingHuaYa\_63
- Track 60 : LeMond\_64
- Track 61 : Validus\_64
- Track 62 : MeaningOfLife\_62
- Track 63 : LastHope\_64
- Track 64 : Curiosium\_65
- Track 65 : Marcoliusprime\_62, DismalFunk\_62, DismalStressor\_62, Strobilo\_63
- Track 66 : Mufasa\_62, Doughnut\_63, BoostSeason\_62
- Track 67 : Findley\_62
- Track 68 : TM4\_59
- Track 69 : ZoeJ\_61
- Track 70 : Milly\_62
- Track 71 : TBond007\_58, Pixie\_59
- Track 72 : Keshu\_62
- Track 73 : TribbleTrouble\_60
- Track 74 : ShedlockHolmes\_61, Lea83\_61
- Track 75 : Hurricane\_60
- Track 76 : MacnCheese\_62
- Track 77 : Malthus\_65, Eponine\_66, Juliette\_66, Lebo14\_65, Ruthiejr\_65, Mitti\_64, Cheetobro\_64, Taquito\_63, Fionnbharth\_64, Slarp\_64, Wintermute\_64, Kraw\_65, SamScheppers\_62, OmniCritical\_63, Chancellor\_64
- Track 78 : Y2\_62, Y10\_62, JF1\_64

- Track 79 : Reptar3000\_61, MissDaisy\_61, Bobquesha\_65, Patt\_60
- Track 80 : Omnicron\_59
- Track 81 : Yuna\_65
- Track 82 : Hammy\_60
- Track 83 : Ekdilam\_58
- Track 84 : DarthP\_60
- Track 85 : Marshawn\_60
- Track 86 : Amohnition\_60
- Track 87 : Aminay\_61
- Track 88 : Boilgate\_56
- Track 89 : Catdawg\_12, JangDynasty\_12, Bora\_13, Alkhayr\_13, FoulBall\_12, Idergollasper\_12, Blessica\_12, Vorrps\_13, KingPhillip3\_12, Murai\_13, Familton\_13, YungJamal\_14, Zebo\_12, Vagabond\_13, Shida\_13, Ryadel\_15, Mori\_13, Firecracker\_13, Wogge42\_13, NiebruSaylor\_13, TelAviv\_12, SchoolBus\_12
- Track 90 : Dylan\_13, Zakhe101\_14, Ashwin\_14, Wildflower\_13
- Track 91 : Schuy\_14, Krili\_13, MadKillah\_14
- Track 92 : Corndog\_15
- Track 93 : Smooch\_14
- Track 94 : Winget\_13
- Track 95 : GMA4\_40
- Track 96 : Yappy\_87
- Track 97 : TinyDot\_44
- Track 98 : Shambre1\_40
- Track 99 : TPA4\_47

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

The start number called the most often in the published annotations is 31, it was called in 142 of the 220 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Adephagia\_61, Adonis\_61, Ageofdapage\_64, AlishaPH\_61, Amelie\_50, Aminay\_61, Amohnition\_60, Anaya\_63, Angelica\_61, Apocalypse\_64, Asayake\_61, Atiba\_62, BEEST\_61, BGlluviae\_61, BarrelRoll\_61, Beezoo\_63, Bella96\_62, Belladonna\_61, Bern\_62, Binglebops\_50, Blizzard\_61, Bobquesha\_65, Boiiii\_61, Boilgate\_56, BoostSeason\_62, CREW\_61, CallaLilly\_63, Capricorn\_61, CaseJules\_63, Chancellor\_64, Chavito\_62, CheetoDust\_60, Cheetobro\_64, Clipper\_65, CrimD\_62, Curiosium\_65, Dalmuri\_61, DarthP\_60, Dartin\_62, Deby\_61, Devera\_68, DismalFunk\_62, DismalStressor\_62, Dole\_66, Doughnut\_63, DrHayes\_62, Durfee\_61, Efra2\_65, Eileen\_43, Ekdilam\_58, Emerson\_62, Enkosi\_52, Eponine\_66, Findley\_62, Fionnbharth\_64, Ganymede\_62, Geraldini\_64, Guanica15\_64, Hammy\_60, Homura\_61, Hurricane\_60, Hyperbowlee\_61, Illumine\_66, Inky\_61, JAWS\_61, JF1\_64, Jarvi\_61, Jayhawk\_62, Jeckyll\_61, Joy99\_61, Juliette\_66, Keshu\_62, KiSi\_65, Kraw\_65, LastHope\_64, LaterM\_61, LeMond\_64, Lea83\_61, Lebo14\_65, LilPharaoh\_50, LindNT\_60, Llorens\_61, Lunahalos\_61, MacKat\_56, MacnCheese\_62, MalagasyRose\_61, Malthus\_65, Marcoliusprime\_62, Marshawn\_60, McMater\_62, Mdavu\_51, MeaningOfLife\_62, Megsy\_63, Milly\_62, MissDaisy\_61, Mitti\_64, Mufasa\_62, Murucutumbu\_62, Mynx\_62, Nikao\_53, Niklas\_62, Nutello\_50, OmniCritical\_63, Omnicron\_59, Oscar\_64, Padfoot\_61, Padpat\_63, Patt\_60, Peanam\_62, Peel\_61, Piatt\_61, Pixie\_59, Pokerus\_60,

Prithvi\_62, QuincyRose\_60, Rapunzel97\_62, Reptar3000\_61, Richo\_62, Rosmarinus\_61, Ruthiejr\_65, SamScheppers\_62, SamuelLPlaqson\_62, Scarlett\_65, SgtBeansprout\_50, Shaobing\_62, ShedlockHolmes\_61, ShiaSurprise\_62, Slarp\_64, Slimphazie\_61, Spock\_61, Stinson\_62, Strobilo\_63, Sulley\_61, TBond007\_58, TM4\_59, Tachez\_61, TaiwanKao\_63, Taquito\_63, Teejan\_52, TingHuaYa\_63, TiniBug\_62, Tiri\_62, Topper\_61, Torres\_52, TreyKay\_62, TribbleTrouble\_60, TruffulaTree\_61, Twitch\_61, Urkel\_62, Validus\_64, Veliki\_62, Wintermute\_64, Y10\_62, Y2\_62, YoureAdopted\_60, Yuna\_65, Yunkel11\_64, Zavala\_63, ZoeJ\_61,

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

- 

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

- Alkhayr\_13, Amavida\_63, Amigo\_62, Anansi\_61, Ashwin\_14, Ayotoya\_47, BetterKatz\_47, Blessica\_12, Bock\_47, Boersma\_64, Bora\_13, Bridgette\_48, Brylie\_47, Catdawg\_12, Chop\_47, ChuckDuck\_48, Commonplace\_65, Constance\_46, Corndog\_15, DelRio\_48, DonkeyMan\_39, Dylan\_13, Familton\_13, Firecracker\_13, FosterFrank\_49, FoulBall\_12, Francois\_46, GMA4\_40, GlobiWarming\_48, Gorgeous\_61, GrandSlam\_47, Hamood\_47, Heinz\_40, Heylee\_64, Hibiscus\_40, HotPotato\_45, Ichor\_61, Idergollasper\_12, Jaek\_61, JangDynasty\_12, Jflix2\_69, Jojo24\_38, Judy\_49, Karkharias\_46, KayMoney\_46, KingPhillip3\_12, Krili\_13, MadKillah\_14, Madraxi\_73, Molivia\_63, Mori\_13, Mulch\_47, Murai\_13, Nadeem\_47, NancyRae\_47, NiebruSaylor\_13, NoSwimming\_41, Nonagon\_64, Parada\_47, Peas\_45, PeggyLeg03\_46, Pimento\_48, Pucara\_43, REQ1\_38, Reyja\_39, Rings\_62, RootBeer\_37, Ryadel\_15, Santhid\_38, SchoolBus\_12, Schuy\_14, Scotia\_39, Shagrat\_70, Shambre1\_40, Shida\_13, Smooch\_14, SorJuana\_61, TPA4\_47, Tarzan\_39, TelAviv\_12, Thunderclap\_61, TinyDot\_44, Vagabond\_13, Vorrps\_13, WheatThin\_47, Wildflower\_13, Winget\_13, Wogge42\_13, Yappy\_87, Yeezus\_61, YungJamal\_14, Zakhe101\_14, Zebo\_12,

### Summary by start number:

Start 20:

- Found in 16 of 252 ( 6.3% ) of genes in pham
- Manual Annotations of this start: 15 of 220
- Called 93.8% of time when present
- Phage (with cluster) where this start called: Ayotoya\_47 (DI), BetterKatz\_47 (DI), Bock\_47 (DI), Brylie\_47 (DI), Chop\_47 (DI), DelRio\_48 (DI), Francois\_46 (DI), GrandSlam\_47 (DI), Hamood\_47 (DI), Mulch\_47 (DI), Nadeem\_47 (DI), NancyRae\_47 (DI), Parada\_47 (DI), Pimento\_48 (DI), WheatThin\_47 (DI),

Start 29:

- Found in 1 of 252 ( 0.4% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: HotPotato\_45 (FA),

Start 31:

- Found in 159 of 252 ( 63.1% ) of genes in pham
- Manual Annotations of this start: 142 of 220
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Adephagia\_61 (K1), Adonis\_61 (K1), Ageofdapage\_64 (K1), AlishaPH\_61 (K1), Amelie\_50 (K1), Aminay\_61 (K7),

Amohnton\_60 (K6), Anaya\_63 (K1), Angelica\_61 (K1), Apocalypse\_64 (K1), Asayake\_61 (K1), Atiba\_62 (K1), BEEST\_61 (K1), BGIlluviae\_61 (K1), BarrelRoll\_61 (K1), Beezoo\_63 (K1), Bella96\_62 (K1), Belladonna\_61 (K1), Bern\_62 (K1), Binglebops\_50 (K1), Blizzard\_61 (K1), Bobquesha\_65 (K4), Boiiii\_61 (K1), Boilgate\_56 (K8), BoostSeason\_62 (K2), CREW\_61 (K1), CallaLilly\_63 (K1), Capricorn\_61 (K1), CaseJules\_63 (K1), Chancellor\_64 (K4), Chavito\_62 (K1), CheetoDust\_60 (K1), Cheetobro\_64 (K4), Clipper\_65 (K1), CrimD\_62 (K1), Curiosium\_65 (K1), Dalmuri\_61 (K1), DarthP\_60 (K6), Dartin\_62 (K1), Deby\_61 (K1), Devera\_68 (K1), DismalFunk\_62 (K2), DismalStressor\_62 (K2), Dole\_66 (K1), Doughnut\_63 (K2), DrHayes\_62 (K1), Durfee\_61 (K1), Efra2\_65 (K1), Eileen\_43 (FA), Ekdilam\_58 (K6), Emerson\_62 (K1), Enkosi\_52 (K1), Eponine\_66 (K4), Findley\_62 (K2), Fionnbharth\_64 (K4), Ganymede\_62 (K1), Geraldini\_64 (K1), Guanica15\_64 (K1), Hammy\_60 (K6), Homura\_61 (K1), Hurricane\_60 (K3), Hyperbowlee\_61 (K1), Illumine\_66 (K1), Inky\_61 (K1), JAWS\_61 (K1), JF1\_64 (K4), Jarvi\_61 (K1), Jayhawk\_62 (K1), Jeckyll\_61 (K1), Joy99\_61 (K1), Juliette\_66 (K4), Keshu\_62 (K3), KiSi\_65 (K1), Kraw\_65 (K4), LastHope\_64 (K1), LaterM\_61 (K1), LeMond\_64 (K1), Lea83\_61 (K3), Lebo14\_65 (K4), LilPharaoh\_50 (K1), LindNT\_60 (K1), Llorens\_61 (K1), Lunahalos\_61 (K1), MacKat\_56 (K1), MacnCheese\_62 (K3), MalagasyRose\_61 (AG), Malthus\_65 (K4), Marcoliusprime\_62 (K2), Marshawn\_60 (K6), McMater\_62 (K1), Mdavu\_51 (K1), MeaningOfLife\_62 (K1), Megsy\_63 (K1), Milly\_62 (K2), MissDaisy\_61 (K4), Mitti\_64 (K4), Mufasa\_62 (K2), Murucutumbu\_62 (K1), Mynx\_62 (K1), Nikao\_53 (K1), Niklas\_62 (K1), Nutello\_50 (K1), OmniCritical\_63 (K4), Omnicron\_59 (K5), Oscar\_64 (K1), Padfoot\_61 (K1), Padpat\_63 (K1), Patt\_60 (K4), Peanam\_62 (K1), Peel\_61 (K1), Piatt\_61 (K1), Pixie\_59 (K3), Pokerus\_60 (K1), Prithvi\_62 (K1), QuincyRose\_60 (K1), Rapunzel97\_62 (K1), Reptar3000\_61 (K4), Richo\_62 (K1), Rosmarinus\_61 (K1), Ruthiejr\_65 (K4), SamScheppers\_62 (K4), SamuelLPlaqson\_62 (K1), Scarlett\_65 (K1), SgtBeansprout\_50 (K1), Shaobing\_62 (K1), ShedlockHolmes\_61 (K3), ShiaSurprise\_62 (K1), Slarp\_64 (K4), Slimphazie\_61 (K1), Spock\_61 (K1), Stinson\_62 (K1), Strobilo\_63 (K2), Sulley\_61 (K1), TBond007\_58 (K3), TM4\_59 (K2), Tachez\_61 (K1), TaiwanKao\_63 (K1), Taquito\_63 (K4), Teejan\_52 (K1), TingHuaYa\_63 (K1), TiniBug\_62 (K1), Tiri\_62 (K1), Topper\_61 (K1), Torres\_52 (K1), TreyKay\_62 (K1), TripleTrouble\_60 (K3), TruffulaTree\_61 (K1), Twitch\_61 (K1), Urkel\_62 (K1), Validus\_64 (K1), Veliki\_62 (K1), Wintermute\_64 (K4), Y10\_62 (K4), Y2\_62 (K4), YoureAdopted\_60 (K1), Yuna\_65 (K6), Yunkel11\_64 (K1), Zavala\_63 (K1), ZoeJ\_61 (K2),

#### Start 32:

- Found in 2 of 252 ( 0.8% ) of genes in pham
- No Manual Annotations of this start.
- Called 50.0% of time when present
- Phage (with cluster) where this start called: FosterFrank\_49 (FA),

#### Start 34:

- Found in 14 of 252 ( 5.6% ) of genes in pham
- Manual Annotations of this start: 9 of 220
- Called 92.9% of time when present
- Phage (with cluster) where this start called: Bridgette\_48 (FA), ChuckDuck\_48 (FA), Constance\_46 (FA), GlobiWarming\_48 (FA), Judy\_49 (FA), Karkharias\_46 (FA), KayMoney\_46 (FA), NoSwimming\_41 (FO), Peas\_45 (FA), PeggyLeg03\_46 (FA), Pucara\_43 (FA), RootBeer\_37 (FA), Scotia\_39 (FO),

#### Start 35:

- Found in 1 of 252 ( 0.4% ) of genes in pham

- Manual Annotations of this start: 1 of 220
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Jojo24\_38 (DY),

#### Start 36:

- Found in 6 of 252 ( 2.4% ) of genes in pham
- Manual Annotations of this start: 4 of 220
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DonkeyMan\_39 (DY), Heinz\_40 (DY), Hibiscus\_40 (DY), Reyja\_39 (DY), Santhid\_38 (DY), Tarzan\_39 (DY),

#### Start 41:

- Found in 15 of 252 ( 6.0% ) of genes in pham
- Manual Annotations of this start: 1 of 220
- Called 6.7% of time when present
- Phage (with cluster) where this start called: Shambre1\_40 (singleton),

#### Start 42:

- Found in 3 of 252 ( 1.2% ) of genes in pham
- Manual Annotations of this start: 2 of 220
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Jflix2\_69 (CF), Madraxi\_73 (CF), REQ1\_38 (CF),

#### Start 43:

- Found in 1 of 252 ( 0.4% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: TPA4\_47 (singleton),

#### Start 44:

- Found in 1 of 252 ( 0.4% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: GMA4\_40 (singleton),

#### Start 46:

- Found in 33 of 252 ( 13.1% ) of genes in pham
- Manual Annotations of this start: 29 of 220
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Alkhayr\_13 (O), Ashwin\_14 (O), Blessica\_12 (O), Bora\_13 (O), Catdawg\_12 (O), Corndog\_15 (O), Dylan\_13 (O), Familton\_13 (O), Firecracker\_13 (O), FoulBall\_12 (O), Idergollasper\_12 (O), JangDynasty\_12 (O), KingPhillip3\_12 (O), Krili\_13 (O), MadKillah\_14 (O), Mori\_13 (O), Murai\_13 (O), NiebruSaylor\_13 (O), Ryadel\_15 (O), SchoolBus\_12 (O), Schuy\_14 (O), Shagrat\_70 (CF), Shida\_13 (O), Smooch\_14 (O), TelAviv\_12 (O), Vagabond\_13 (O), Vorrps\_13 (O), Wildflower\_13 (O), Winget\_13 (O), Wogge42\_13 (O), YungJamal\_14 (O), Zakhe101\_14 (O), Zebo\_12 (O),

#### Start 47:

- Found in 2 of 252 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 1 of 220
- Called 50.0% of time when present



- Phage (with cluster) where this start called: TinyDot\_44 (singleton),

Start 52:

- Found in 3 of 252 ( 1.2% ) of genes in pham
- Manual Annotations of this start: 2 of 220
- Called 66.7% of time when present
- Phage (with cluster) where this start called: Commonplace\_65 (JD), Nonagon\_64 (JD),

Start 54:

- Found in 1 of 252 ( 0.4% ) of genes in pham
- Manual Annotations of this start: 1 of 220
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Molivia\_63 (AQ),

Start 55:

- Found in 4 of 252 ( 1.6% ) of genes in pham
- Manual Annotations of this start: 1 of 220
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Yappy\_87 (singleton),

Start 56:

- Found in 14 of 252 ( 5.6% ) of genes in pham
- Manual Annotations of this start: 12 of 220
- Called 85.7% of time when present
- Phage (with cluster) where this start called: Amavida\_63 (AQ), Amigo\_62 (AQ), Anansi\_61 (AQ), Boersma\_64 (AQ), Gorgeous\_61 (AQ), Heylee\_64 (AQ), Ichor\_61 (AQ), Jaek\_61 (AQ), Rings\_62 (AQ), SorJuana\_61 (AQ), Thunderclap\_61 (AQ), Yeezus\_61 (AQ),

### **Summary by clusters:**

There are 18 clusters represented in this pham: AQ, singleton, AG, K2, DI, CF, O, K4, K3, FA, K1, K7, K6, K5, DY, JD, K8, FO,

Info for manual annotations of cluster AG:

- Start number 31 was manually annotated 1 time for cluster AG.

Info for manual annotations of cluster AQ:

- Start number 54 was manually annotated 1 time for cluster AQ.
- Start number 56 was manually annotated 12 times for cluster AQ.

Info for manual annotations of cluster CF:

- Start number 42 was manually annotated 2 times for cluster CF.
- Start number 46 was manually annotated 1 time for cluster CF.

Info for manual annotations of cluster DI:

- Start number 20 was manually annotated 15 times for cluster DI.

Info for manual annotations of cluster DY:

- Start number 35 was manually annotated 1 time for cluster DY.
- Start number 36 was manually annotated 4 times for cluster DY.

Info for manual annotations of cluster FA:

- Start number 31 was manually annotated 1 time for cluster FA.
- Start number 34 was manually annotated 9 times for cluster FA.

Info for manual annotations of cluster JD:

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

Info for manual annotations of cluster K1:

- Start number 31 was manually annotated 95 times for cluster K1.

Info for manual annotations of cluster K2:

- Start number 31 was manually annotated 10 times for cluster K2.

Info for manual annotations of cluster K3:

- Start number 31 was manually annotated 7 times for cluster K3.

Info for manual annotations of cluster K4:

- Start number 31 was manually annotated 19 times for cluster K4.

Info for manual annotations of cluster K5:

- Start number 31 was manually annotated 1 time for cluster K5.

Info for manual annotations of cluster K6:

- Start number 31 was manually annotated 6 times for cluster K6.

Info for manual annotations of cluster K7:

- Start number 31 was manually annotated 1 time for cluster K7.

Info for manual annotations of cluster K8:

- Start number 31 was manually annotated 1 time for cluster K8.

Info for manual annotations of cluster O:

- Start number 46 was manually annotated 28 times for cluster O.

### ***Gene Information:***

Gene: Adephagia\_61 Start: 41293, Stop: 42171, Start Num: 31

Candidate Starts for Adephagia\_61:

(Start: 31 @41293 has 142 MA's), (62, 41404), (79, 41503), (114, 41725), (121, 41779), (135, 41854), (142, 41911), (150, 41959), (164, 42025), (176, 42073), (178, 42085), (179, 42100),

Gene: Adonis\_61 Start: 41528, Stop: 42406, Start Num: 31

Candidate Starts for Adonis\_61:

(Start: 31 @41528 has 142 MA's), (62, 41639), (69, 41675), (79, 41738), (101, 41888), (114, 41960), (121, 42014), (135, 42089), (142, 42146), (150, 42194), (164, 42260), (176, 42308), (178, 42320), (179, 42335),

Gene: Ageofdapage\_64 Start: 42266, Stop: 43153, Start Num: 31

Candidate Starts for Ageofdapage\_64:

(Start: 31 @42266 has 142 MA's), (62, 42377), (79, 42476), (114, 42698), (121, 42752), (135, 42836), (142, 42893), (150, 42941), (164, 43007), (177, 43058), (178, 43067), (179, 43082),

Gene: AlishaPH\_61 Start: 41554, Stop: 42432, Start Num: 31

Candidate Starts for AlishaPH\_61:

(Start: 31 @41554 has 142 MA's), (62, 41665), (79, 41764), (114, 41986), (121, 42040), (135, 42115), (142, 42172), (150, 42220), (164, 42286), (176, 42334), (178, 42346), (179, 42361),

Gene: Alkhayr\_13 Start: 5075, Stop: 5824, Start Num: 46

Candidate Starts for Alkhayr\_13:

(Start: 46 @5075 has 29 MA's), (62, 5141), (75, 5219), (81, 5243), (87, 5303), (95, 5345), (110, 5381), (121, 5441), (142, 5570), (150, 5618), (156, 5657), (172, 5705),

Gene: Amavida\_63 Start: 41647, Stop: 41006, Start Num: 56

Candidate Starts for Amavida\_63:

(Start: 56 @41647 has 12 MA's), (72, 41560), (76, 41539), (82, 41527), (85, 41485), (90, 41458), (96, 41446), (99, 41431), (146, 41197), (155, 41122),

Gene: Amelie\_50 Start: 38595, Stop: 39482, Start Num: 31

Candidate Starts for Amelie\_50:

(Start: 31 @38595 has 142 MA's), (62, 38706), (79, 38805), (101, 38955), (106, 38988), (114, 39027), (121, 39081), (135, 39165), (141, 39213), (142, 39222), (147, 39237), (150, 39270), (176, 39384), (179, 39411),

Gene: Amigo\_62 Start: 41862, Stop: 41221, Start Num: 56

Candidate Starts for Amigo\_62:

(Start: 56 @41862 has 12 MA's), (72, 41775), (76, 41754), (82, 41742), (85, 41700), (90, 41673), (96, 41661), (99, 41646), (146, 41412), (155, 41337),

Gene: Aminay\_61 Start: 40983, Stop: 41852, Start Num: 31

Candidate Starts for Aminay\_61:

(25, 40962), (Start: 31 @40983 has 142 MA's), (Start: 47 @41019 has 1 MA's), (97, 41292), (121, 41448), (137, 41535), (142, 41580), (148, 41610), (164, 41694), (177, 41745), (186, 41808),

Gene: Amohnition\_60 Start: 41578, Stop: 42447, Start Num: 31

Candidate Starts for Amohnition\_60:

(Start: 31 @41578 has 142 MA's), (62, 41689), (101, 41938), (112, 41998), (114, 42004), (135, 42133), (142, 42190), (150, 42238), (153, 42265), (165, 42307), (177, 42355), (179, 42379),

Gene: Anansi\_61 Start: 41469, Stop: 40828, Start Num: 56

Candidate Starts for Anansi\_61:

(Start: 56 @41469 has 12 MA's), (72, 41382), (76, 41361), (82, 41349), (85, 41307), (90, 41280), (96, 41268), (99, 41253), (146, 41019), (155, 40944),

Gene: Anaya\_63 Start: 41812, Stop: 42690, Start Num: 31

Candidate Starts for Anaya\_63:

(Start: 31 @41812 has 142 MA's), (62, 41923), (79, 42022), (101, 42172), (114, 42244), (121, 42298), (135, 42373), (142, 42430), (150, 42478), (164, 42544), (176, 42592), (178, 42604), (179, 42619),

Gene: Angelica\_61 Start: 41436, Stop: 42323, Start Num: 31

Candidate Starts for Angelica\_61:

(Start: 31 @41436 has 142 MA's), (62, 41547), (79, 41646), (101, 41796), (114, 41868), (121, 41922), (135, 42006), (142, 42063), (150, 42111), (164, 42177), (177, 42228), (178, 42237), (179, 42252),

(188, 42294),

Gene: Apocalypse\_64 Start: 42202, Stop: 43089, Start Num: 31

Candidate Starts for Apocalypse\_64:

(Start: 31 @42202 has 142 MA's), (57, 42295), (62, 42313), (79, 42412), (101, 42562), (114, 42634), (121, 42688), (135, 42772), (142, 42829), (150, 42877), (164, 42943), (177, 42994), (178, 43003), (179, 43018), (188, 43060),

Gene: Asayake\_61 Start: 41608, Stop: 42486, Start Num: 31

Candidate Starts for Asayake\_61:

(Start: 31 @41608 has 142 MA's), (62, 41719), (79, 41818), (114, 42040), (121, 42094), (135, 42169), (142, 42226), (150, 42274), (164, 42340), (176, 42388), (178, 42400), (179, 42415),

Gene: Ashwin\_14 Start: 5310, Stop: 6059, Start Num: 46

Candidate Starts for Ashwin\_14:

(Start: 46 @5310 has 29 MA's), (62, 5376), (75, 5454), (81, 5478), (87, 5538), (95, 5580), (100, 5601), (110, 5616), (121, 5676), (142, 5805), (150, 5853), (156, 5892), (172, 5940),

Gene: Atiba\_62 Start: 41256, Stop: 42134, Start Num: 31

Candidate Starts for Atiba\_62:

(Start: 31 @41256 has 142 MA's), (62, 41367), (79, 41466), (114, 41688), (121, 41742), (135, 41817), (142, 41874), (150, 41922), (164, 41988), (176, 42036), (178, 42048), (179, 42063),

Gene: Ayotoya\_47 Start: 34657, Stop: 35544, Start Num: 20

Candidate Starts for Ayotoya\_47:

(7, 34429), (10, 34504), (11, 34513), (14, 34552), (Start: 20 @34657 has 15 MA's), (23, 34678), (48, 34768), (53, 34795), (57, 34813), (71, 34882), (125, 35167), (127, 35176), (129, 35182), (144, 35269), (145, 35272), (150, 35314), (153, 35341), (159, 35368), (161, 35374), (165, 35383), (169, 35392),

Gene: BEEST\_61 Start: 41608, Stop: 42486, Start Num: 31

Candidate Starts for BEEST\_61:

(Start: 31 @41608 has 142 MA's), (62, 41719), (79, 41818), (114, 42040), (121, 42094), (135, 42169), (142, 42226), (150, 42274), (164, 42340), (176, 42388), (178, 42400), (179, 42415),

Gene: BGIlluviae\_61 Start: 41411, Stop: 42289, Start Num: 31

Candidate Starts for BGIlluviae\_61:

(Start: 31 @41411 has 142 MA's), (62, 41522), (79, 41621), (114, 41843), (121, 41897), (135, 41972), (142, 42029), (150, 42077), (164, 42143), (176, 42191), (178, 42203), (179, 42218),

Gene: BarrelRoll\_61 Start: 41260, Stop: 42147, Start Num: 31

Candidate Starts for BarrelRoll\_61:

(Start: 31 @41260 has 142 MA's), (57, 41353), (62, 41371), (79, 41470), (101, 41620), (114, 41692), (121, 41746), (135, 41830), (142, 41887), (150, 41935), (164, 42001), (178, 42061), (179, 42076), (188, 42118),

Gene: Beezoo\_63 Start: 42244, Stop: 43122, Start Num: 31

Candidate Starts for Beezoo\_63:

(Start: 31 @42244 has 142 MA's), (62, 42355), (79, 42454), (101, 42604), (114, 42676), (121, 42730), (135, 42805), (142, 42862), (150, 42910), (164, 42976), (176, 43024), (178, 43036), (179, 43051),

Gene: Bella96\_62 Start: 42019, Stop: 42900, Start Num: 31

Candidate Starts for Bella96\_62:

(Start: 31 @42019 has 142 MA's), (62, 42130), (79, 42229), (114, 42454), (121, 42508), (135, 42583), (142, 42640), (150, 42688), (164, 42754), (176, 42802), (178, 42814), (179, 42829),

Gene: Belladonna\_61 Start: 41411, Stop: 42289, Start Num: 31

Candidate Starts for Belladonna\_61:

(Start: 31 @41411 has 142 MA's), (62, 41522), (79, 41621), (114, 41843), (121, 41897), (135, 41972), (142, 42029), (150, 42077), (164, 42143), (176, 42191), (178, 42203), (179, 42218),

Gene: Bern\_62 Start: 40230, Stop: 41117, Start Num: 31

Candidate Starts for Bern\_62:

(Start: 31 @40230 has 142 MA's), (62, 40341), (79, 40440), (101, 40590), (114, 40662), (121, 40716), (135, 40800), (142, 40857), (150, 40905), (164, 40971), (170, 40986), (178, 41031), (179, 41046),

Gene: BetterKatz\_47 Start: 34191, Stop: 35018, Start Num: 20

Candidate Starts for BetterKatz\_47:

(10, 34029), (11, 34038), (14, 34077), (Start: 20 @34191 has 15 MA's), (33, 34206), (37, 34215), (53, 34269), (57, 34287), (71, 34356), (125, 34641), (127, 34650), (129, 34656), (144, 34743), (150, 34788), (153, 34815), (159, 34842), (161, 34848), (165, 34857), (169, 34866),

Gene: Biglebops\_50 Start: 38595, Stop: 39482, Start Num: 31

Candidate Starts for Biglebops\_50:

(Start: 31 @38595 has 142 MA's), (62, 38706), (79, 38805), (101, 38955), (106, 38988), (114, 39027), (121, 39081), (135, 39165), (141, 39213), (142, 39222), (147, 39237), (150, 39270), (176, 39384), (179, 39411),

Gene: Blessica\_12 Start: 4707, Stop: 5456, Start Num: 46

Candidate Starts for Blessica\_12:

(Start: 46 @4707 has 29 MA's), (62, 4773), (75, 4851), (81, 4875), (87, 4935), (95, 4977), (110, 5013), (121, 5073), (142, 5202), (150, 5250), (156, 5289), (172, 5337),

Gene: Blizzard\_61 Start: 41608, Stop: 42486, Start Num: 31

Candidate Starts for Blizzard\_61:

(Start: 31 @41608 has 142 MA's), (62, 41719), (79, 41818), (114, 42040), (121, 42094), (135, 42169), (142, 42226), (150, 42274), (164, 42340), (176, 42388), (178, 42400), (179, 42415),

Gene: Bobquesha\_65 Start: 39808, Stop: 40671, Start Num: 31

Candidate Starts for Bobquesha\_65:

(16, 39643), (25, 39787), (Start: 31 @39808 has 142 MA's), (68, 39919), (69, 39937), (82, 40009), (84, 40039), (114, 40222), (121, 40276), (142, 40408), (185, 40633), (186, 40636),

Gene: Bock\_47 Start: 33880, Stop: 34767, Start Num: 20

Candidate Starts for Bock\_47:

(10, 33727), (11, 33736), (14, 33775), (Start: 20 @33880 has 15 MA's), (23, 33901), (48, 33991), (53, 34018), (57, 34036), (71, 34105), (125, 34390), (127, 34399), (129, 34405), (144, 34492), (145, 34495), (150, 34537), (153, 34564), (159, 34591), (161, 34597), (165, 34606), (169, 34615),

Gene: Boersma\_64 Start: 41862, Stop: 41221, Start Num: 56

Candidate Starts for Boersma\_64:

(Start: 56 @41862 has 12 MA's), (72, 41775), (76, 41754), (82, 41742), (85, 41700), (90, 41673), (96, 41661), (99, 41646), (146, 41412), (155, 41337),

Gene: Boiiii\_61 Start: 41610, Stop: 42488, Start Num: 31

Candidate Starts for Boiiii\_61:

(Start: 31 @41610 has 142 MA's), (62, 41721), (79, 41820), (114, 42042), (121, 42096), (135, 42171), (142, 42228), (150, 42276), (164, 42342), (176, 42390), (178, 42402), (179, 42417),

Gene: Boilgate\_56 Start: 40641, Stop: 41474, Start Num: 31

Candidate Starts for Boilgate\_56:

(Start: 31 @40641 has 142 MA's), (62, 40722), (135, 41154), (137, 41166), (142, 41211), (170, 41340), (176, 41373),

Gene: BoostSeason\_62 Start: 42960, Stop: 43817, Start Num: 31

Candidate Starts for BoostSeason\_62:

(Start: 31 @42960 has 142 MA's), (62, 43065), (79, 43164), (114, 43374), (150, 43608), (165, 43677), (177, 43725), (178, 43734), (179, 43749),

Gene: Bora\_13 Start: 5108, Stop: 5857, Start Num: 46

Candidate Starts for Bora\_13:

(Start: 46 @5108 has 29 MA's), (62, 5174), (75, 5252), (81, 5276), (87, 5336), (95, 5378), (110, 5414), (121, 5474), (142, 5603), (150, 5651), (156, 5690), (172, 5738),

Gene: Bridgette\_48 Start: 31057, Stop: 31863, Start Num: 34

Candidate Starts for Bridgette\_48:

(Start: 34 @31057 has 9 MA's), (38, 31066), (Start: 41 @31081 has 1 MA's), (63, 31168), (66, 31180), (72, 31228), (86, 31312), (107, 31393), (121, 31480), (139, 31588), (142, 31612), (144, 31615), (158, 31711), (173, 31759),

Gene: Brylie\_47 Start: 33927, Stop: 34814, Start Num: 20

Candidate Starts for Brylie\_47:

(10, 33774), (11, 33783), (14, 33822), (Start: 20 @33927 has 15 MA's), (23, 33948), (48, 34038), (53, 34065), (57, 34083), (125, 34437), (127, 34446), (129, 34452), (144, 34539), (145, 34542), (150, 34584), (153, 34611), (159, 34638), (161, 34644), (165, 34653), (169, 34662),

Gene: CREW\_61 Start: 41411, Stop: 42289, Start Num: 31

Candidate Starts for CREW\_61:

(Start: 31 @41411 has 142 MA's), (62, 41522), (79, 41621), (114, 41843), (121, 41897), (135, 41972), (142, 42029), (150, 42077), (164, 42143), (176, 42191), (178, 42203), (179, 42218),

Gene: CallaLilly\_63 Start: 41334, Stop: 42212, Start Num: 31

Candidate Starts for CallaLilly\_63:

(Start: 31 @41334 has 142 MA's), (62, 41445), (79, 41544), (114, 41766), (121, 41820), (135, 41895), (142, 41952), (150, 42000), (164, 42066), (176, 42114), (178, 42126), (179, 42141),

Gene: Capricorn\_61 Start: 41411, Stop: 42289, Start Num: 31

Candidate Starts for Capricorn\_61:

(Start: 31 @41411 has 142 MA's), (62, 41522), (79, 41621), (114, 41843), (121, 41897), (135, 41972), (142, 42029), (150, 42077), (164, 42143), (176, 42191), (178, 42203), (179, 42218),

Gene: CaseJules\_63 Start: 41608, Stop: 42486, Start Num: 31

Candidate Starts for CaseJules\_63:

(Start: 31 @41608 has 142 MA's), (62, 41719), (79, 41818), (114, 42040), (121, 42094), (135, 42169), (142, 42226), (150, 42274), (164, 42340), (176, 42388), (178, 42400), (179, 42415),

Gene: Catdawg\_12 Start: 4747, Stop: 5496, Start Num: 46

Candidate Starts for Catdawg\_12:

(Start: 46 @4747 has 29 MA's), (62, 4813), (75, 4891), (81, 4915), (87, 4975), (95, 5017), (110, 5053), (121, 5113), (142, 5242), (150, 5290), (156, 5329), (172, 5377),

Gene: Chancellor\_64 Start: 40918, Stop: 41781, Start Num: 31

Candidate Starts for Chancellor\_64:

(23, 40882), (25, 40897), (Start: 31 @40918 has 142 MA's), (45, 40951), (50, 40972), (69, 41047), (112, 41326), (114, 41332), (123, 41395), (132, 41449), (142, 41518), (150, 41566), (165, 41635), (185, 41743), (186, 41746),

Gene: Chavito\_62 Start: 42011, Stop: 42898, Start Num: 31

Candidate Starts for Chavito\_62:

(Start: 31 @42011 has 142 MA's), (62, 42122), (81, 42224), (101, 42371), (102, 42383), (114, 42443), (121, 42497), (135, 42581), (142, 42638), (150, 42686), (163, 42749), (177, 42803), (178, 42812), (179, 42827), (184, 42851), (187, 42866),

Gene: CheetoDust\_60 Start: 40684, Stop: 41571, Start Num: 31

Candidate Starts for CheetoDust\_60:

(Start: 31 @40684 has 142 MA's), (62, 40795), (79, 40894), (101, 41044), (114, 41116), (121, 41170), (135, 41254), (142, 41311), (150, 41359), (164, 41425), (170, 41440), (178, 41485), (179, 41500),

Gene: Cheetobro\_64 Start: 40915, Stop: 41778, Start Num: 31

Candidate Starts for Cheetobro\_64:

(23, 40879), (25, 40894), (Start: 31 @40915 has 142 MA's), (45, 40948), (50, 40969), (69, 41044), (112, 41323), (114, 41329), (123, 41392), (132, 41446), (142, 41515), (150, 41563), (165, 41632), (185, 41740), (186, 41743),

Gene: Chop\_47 Start: 34404, Stop: 35291, Start Num: 20

Candidate Starts for Chop\_47:

(7, 34176), (10, 34251), (11, 34260), (14, 34299), (Start: 20 @34404 has 15 MA's), (23, 34425), (48, 34515), (53, 34542), (57, 34560), (71, 34629), (125, 34914), (127, 34923), (129, 34929), (144, 35016), (145, 35019), (150, 35061), (153, 35088), (159, 35115), (161, 35121), (165, 35130), (169, 35139),

Gene: ChuckDuck\_48 Start: 30497, Stop: 31303, Start Num: 34

Candidate Starts for ChuckDuck\_48:

(27, 30470), (28, 30473), (Start: 34 @30497 has 9 MA's), (Start: 41 @30521 has 1 MA's), (63, 30608), (66, 30620), (72, 30668), (107, 30833), (132, 30983), (139, 31028), (144, 31055), (158, 31151),

Gene: Clipper\_65 Start: 41859, Stop: 42737, Start Num: 31

Candidate Starts for Clipper\_65:

(Start: 31 @41859 has 142 MA's), (62, 41970), (79, 42069), (101, 42219), (114, 42291), (121, 42345), (135, 42420), (142, 42477), (150, 42525), (164, 42591), (176, 42639), (178, 42651), (179, 42666),

Gene: Commonplace\_65 Start: 42761, Stop: 42051, Start Num: 52

Candidate Starts for Commonplace\_65:

(Start: 52 @42761 has 2 MA's), (59, 42728), (72, 42653), (82, 42617), (84, 42587), (92, 42536), (93, 42530), (98, 42491), (111, 42455), (122, 42377), (130, 42323), (134, 42308), (137, 42293), (141, 42257), (143, 42245), (146, 42239), (152, 42188), (171, 42125),

Gene: Constance\_46 Start: 30686, Stop: 31492, Start Num: 34

Candidate Starts for Constance\_46:

(Start: 34 @30686 has 9 MA's), (Start: 41 @30710 has 1 MA's), (63, 30797), (66, 30809), (72, 30857), (107, 31022), (121, 31109), (139, 31217), (142, 31241), (144, 31244), (158, 31340), (173, 31388),

Gene: Corndog\_15 Start: 5422, Stop: 6171, Start Num: 46

Candidate Starts for Corndog\_15:

(Start: 46 @5422 has 29 MA's), (62, 5488), (75, 5566), (81, 5590), (87, 5650), (95, 5692), (110, 5728), (121, 5788), (142, 5917), (150, 5965), (156, 6004), (172, 6052),

Gene: CrimD\_62 Start: 41817, Stop: 42695, Start Num: 31

Candidate Starts for CrimD\_62:

(Start: 31 @41817 has 142 MA's), (62, 41928), (79, 42027), (114, 42249), (121, 42303), (135, 42378), (142, 42435), (150, 42483), (164, 42549), (176, 42597), (178, 42609), (179, 42624),

Gene: Curiosium\_65 Start: 40936, Stop: 41826, Start Num: 31

Candidate Starts for Curiosium\_65:

(8, 40654), (18, 40804), (23, 40900), (25, 40915), (Start: 31 @40936 has 142 MA's), (62, 41047), (76, 41134), (79, 41146), (114, 41371), (121, 41425), (135, 41509), (150, 41614), (176, 41728), (178, 41740), (179, 41755),

Gene: Dalmuri\_61 Start: 41411, Stop: 42289, Start Num: 31

Candidate Starts for Dalmuri\_61:

(Start: 31 @41411 has 142 MA's), (62, 41522), (79, 41621), (114, 41843), (121, 41897), (135, 41972), (142, 42029), (150, 42077), (164, 42143), (176, 42191), (178, 42203), (179, 42218),

Gene: DarthP\_60 Start: 41432, Stop: 42301, Start Num: 31

Candidate Starts for DarthP\_60:

(Start: 31 @41432 has 142 MA's), (62, 41543), (101, 41792), (112, 41852), (114, 41858), (135, 41987), (142, 42044), (150, 42092), (153, 42119), (165, 42161), (177, 42209), (179, 42233),

Gene: Dartin\_62 Start: 41510, Stop: 42397, Start Num: 31

Candidate Starts for Dartin\_62:

(Start: 31 @41510 has 142 MA's), (62, 41621), (79, 41720), (81, 41723), (101, 41870), (112, 41936), (114, 41942), (121, 41996), (135, 42080), (142, 42137), (150, 42185), (177, 42302), (178, 42311), (179, 42326), (184, 42350), (187, 42365),

Gene: Deby\_61 Start: 41461, Stop: 42348, Start Num: 31

Candidate Starts for Deby\_61:

(Start: 31 @41461 has 142 MA's), (62, 41572), (79, 41671), (101, 41821), (114, 41893), (121, 41947), (135, 42031), (142, 42088), (150, 42136), (164, 42202), (178, 42262), (179, 42277), (188, 42319),

Gene: DelRio\_48 Start: 35109, Stop: 35996, Start Num: 20

Candidate Starts for DelRio\_48:

(10, 34956), (11, 34965), (14, 35004), (Start: 20 @35109 has 15 MA's), (23, 35130), (48, 35220), (53, 35247), (57, 35265), (71, 35334), (125, 35619), (127, 35628), (129, 35634), (140, 35703), (144, 35721), (145, 35724), (153, 35793), (159, 35820), (161, 35826), (165, 35835), (169, 35844),

Gene: Devera\_68 Start: 42823, Stop: 43710, Start Num: 31

Candidate Starts for Devera\_68:

(Start: 31 @42823 has 142 MA's), (62, 42934), (76, 43021), (79, 43033), (114, 43255), (121, 43309), (135, 43393), (142, 43450), (150, 43498), (164, 43564), (177, 43615), (178, 43624), (179, 43639),

Gene: DismalFunk\_62 Start: 43382, Stop: 44239, Start Num: 31

Candidate Starts for DismalFunk\_62:

(Start: 31 @43382 has 142 MA's), (62, 43487), (79, 43586), (114, 43796), (150, 44030), (165, 44099), (177, 44147), (178, 44156), (179, 44171),



Gene: DismalStressor\_62 Start: 43382, Stop: 44239, Start Num: 31  
Candidate Starts for DismalStressor\_62:  
(Start: 31 @43382 has 142 MA's), (62, 43487), (79, 43586), (114, 43796), (150, 44030), (165, 44099),  
(177, 44147), (178, 44156), (179, 44171),

Gene: Dole\_66 Start: 42826, Stop: 43713, Start Num: 31  
Candidate Starts for Dole\_66:  
(Start: 31 @42826 has 142 MA's), (62, 42937), (76, 43024), (79, 43036), (114, 43258), (121, 43312),  
(135, 43396), (142, 43453), (150, 43501), (164, 43567), (177, 43618), (178, 43627), (179, 43642),

Gene: DonkeyMan\_39 Start: 29056, Stop: 29817, Start Num: 36  
Candidate Starts for DonkeyMan\_39:  
(9, 28825), (17, 28906), (22, 29005), (Start: 36 @29056 has 4 MA's), (58, 29122), (81, 29233), (89,  
29308), (91, 29320), (124, 29464), (139, 29539), (142, 29563), (146, 29572), (158, 29662), (165,  
29680), (179, 29752),

Gene: Doughnut\_63 Start: 43001, Stop: 43858, Start Num: 31  
Candidate Starts for Doughnut\_63:  
(Start: 31 @43001 has 142 MA's), (62, 43106), (79, 43205), (114, 43415), (150, 43649), (165, 43718),  
(177, 43766), (178, 43775), (179, 43790),

Gene: DrHayes\_62 Start: 42174, Stop: 43055, Start Num: 31  
Candidate Starts for DrHayes\_62:  
(Start: 31 @42174 has 142 MA's), (62, 42285), (79, 42384), (114, 42609), (121, 42663), (135, 42738),  
(142, 42795), (150, 42843), (164, 42909), (176, 42957), (178, 42969), (179, 42984),

Gene: Durfee\_61 Start: 41608, Stop: 42486, Start Num: 31  
Candidate Starts for Durfee\_61:  
(Start: 31 @41608 has 142 MA's), (62, 41719), (79, 41818), (114, 42040), (121, 42094), (135, 42169),  
(142, 42226), (150, 42274), (164, 42340), (176, 42388), (178, 42400), (179, 42415),

Gene: Dylan\_13 Start: 5310, Stop: 6059, Start Num: 46  
Candidate Starts for Dylan\_13:  
(Start: 46 @5310 has 29 MA's), (62, 5376), (75, 5454), (81, 5478), (87, 5538), (95, 5580), (100, 5601),  
(110, 5616), (121, 5676), (142, 5805), (150, 5853), (156, 5892), (172, 5940),

Gene: Efra2\_65 Start: 41374, Stop: 42279, Start Num: 31  
Candidate Starts for Efra2\_65:  
(Start: 31 @41374 has 142 MA's), (79, 41584), (114, 41824), (121, 41878), (135, 41962), (147, 42034),  
(150, 42067), (164, 42133), (177, 42184), (178, 42193), (179, 42208),

Gene: Eileen\_43 Start: 29004, Stop: 29810, Start Num: 31  
Candidate Starts for Eileen\_43:  
(Start: 31 @29004 has 142 MA's), (Start: 41 @29028 has 1 MA's), (63, 29115), (66, 29127), (72,  
29175), (107, 29340), (121, 29427), (139, 29535), (142, 29559), (144, 29562), (158, 29658),

Gene: Ekdilam\_58 Start: 41462, Stop: 42331, Start Num: 31  
Candidate Starts for Ekdilam\_58:  
(2, 40907), (6, 41147), (Start: 31 @41462 has 142 MA's), (62, 41573), (101, 41822), (104, 41834),  
(112, 41882), (114, 41888), (135, 42017), (142, 42074), (150, 42122), (153, 42149), (165, 42191),  
(177, 42239), (179, 42263),

Gene: Emerson\_62 Start: 41277, Stop: 42155, Start Num: 31

Candidate Starts for Emerson\_62:

(Start: 31 @41277 has 142 MA's), (62, 41388), (79, 41487), (101, 41637), (114, 41709), (121, 41763), (135, 41838), (142, 41895), (150, 41943), (164, 42009), (176, 42057), (178, 42069), (179, 42084),

Gene: Enkosi\_52 Start: 41208, Stop: 42095, Start Num: 31

Candidate Starts for Enkosi\_52:

(Start: 31 @41208 has 142 MA's), (62, 41319), (79, 41418), (101, 41568), (106, 41601), (114, 41640), (121, 41694), (135, 41778), (141, 41826), (142, 41835), (147, 41850), (150, 41883), (176, 41997), (179, 42024),

Gene: Eponine\_66 Start: 41761, Stop: 42624, Start Num: 31

Candidate Starts for Eponine\_66:

(23, 41725), (25, 41740), (Start: 31 @41761 has 142 MA's), (45, 41794), (50, 41815), (69, 41890), (112, 42169), (114, 42175), (123, 42238), (132, 42292), (142, 42361), (150, 42409), (165, 42478), (185, 42586), (186, 42589),

Gene: Familton\_13 Start: 4748, Stop: 5497, Start Num: 46

Candidate Starts for Familton\_13:

(Start: 46 @4748 has 29 MA's), (62, 4814), (75, 4892), (81, 4916), (87, 4976), (95, 5018), (110, 5054), (121, 5114), (142, 5243), (150, 5291), (156, 5330), (172, 5378),

Gene: Findley\_62 Start: 43375, Stop: 44232, Start Num: 31

Candidate Starts for Findley\_62:

(1, 42673), (Start: 31 @43375 has 142 MA's), (62, 43480), (79, 43579), (114, 43789), (150, 44023), (165, 44092), (177, 44140), (178, 44149), (179, 44164),

Gene: Fionnbharth\_64 Start: 41159, Stop: 42022, Start Num: 31

Candidate Starts for Fionnbharth\_64:

(23, 41123), (25, 41138), (Start: 31 @41159 has 142 MA's), (45, 41192), (50, 41213), (69, 41288), (112, 41567), (114, 41573), (123, 41636), (132, 41690), (142, 41759), (150, 41807), (165, 41876), (185, 41984), (186, 41987),

Gene: Firecracker\_13 Start: 5043, Stop: 5792, Start Num: 46

Candidate Starts for Firecracker\_13:

(Start: 46 @5043 has 29 MA's), (62, 5109), (75, 5187), (81, 5211), (87, 5271), (95, 5313), (110, 5349), (121, 5409), (142, 5538), (150, 5586), (156, 5625), (172, 5673),

Gene: FosterFrank\_49 Start: 30685, Stop: 31491, Start Num: 32

Candidate Starts for FosterFrank\_49:

(32, 30685), (Start: 41 @30709 has 1 MA's), (63, 30796), (66, 30808), (72, 30856), (107, 31021), (121, 31108), (139, 31216), (144, 31243), (158, 31339),

Gene: FoulBall\_12 Start: 4748, Stop: 5497, Start Num: 46

Candidate Starts for FoulBall\_12:

(Start: 46 @4748 has 29 MA's), (62, 4814), (75, 4892), (81, 4916), (87, 4976), (95, 5018), (110, 5054), (121, 5114), (142, 5243), (150, 5291), (156, 5330), (172, 5378),

Gene: Francois\_46 Start: 34002, Stop: 34811, Start Num: 20

Candidate Starts for Francois\_46:

(10, 33849), (11, 33858), (14, 33897), (Start: 20 @34002 has 15 MA's), (37, 34026), (Start: 41 @34044 has 1 MA's), (53, 34080), (125, 34452), (127, 34461), (129, 34467), (132, 34482), (137, 34506), (141, 34542), (144, 34554), (150, 34599), (156, 34638), (159, 34653), (165, 34668), (169, 34677), (189, 34800),

Gene: GMA4\_40 Start: 30065, Stop: 30856, Start Num: 44

Candidate Starts for GMA4\_40:

(4, 29687), (12, 29828), (13, 29849), (44, 30065), (Start: 52 @30098 has 2 MA's), (61, 30137), (85, 30284), (91, 30323), (120, 30437), (133, 30503), (146, 30578), (148, 30599), (149, 30602), (162, 30677), (174, 30716), (191, 30815),

Gene: Ganymede\_62 Start: 41672, Stop: 42550, Start Num: 31

Candidate Starts for Ganymede\_62:

(Start: 31 @41672 has 142 MA's), (62, 41783), (79, 41882), (101, 42032), (114, 42104), (121, 42158), (135, 42233), (142, 42290), (150, 42338), (164, 42404), (176, 42452), (178, 42464), (179, 42479),

Gene: Geraldini\_64 Start: 42329, Stop: 43207, Start Num: 31

Candidate Starts for Geraldini\_64:

(Start: 31 @42329 has 142 MA's), (62, 42440), (79, 42539), (101, 42689), (114, 42761), (121, 42815), (135, 42890), (142, 42947), (150, 42995), (164, 43061), (176, 43109), (178, 43121), (179, 43136),

Gene: GlobiWarming\_48 Start: 30454, Stop: 31260, Start Num: 34

Candidate Starts for GlobiWarming\_48:

(Start: 34 @30454 has 9 MA's), (38, 30463), (Start: 41 @30478 has 1 MA's), (63, 30565), (66, 30577), (72, 30625), (107, 30790), (121, 30877), (139, 30985), (142, 31009), (144, 31012), (158, 31108), (173, 31156),

Gene: Gorgeous\_61 Start: 41469, Stop: 40828, Start Num: 56

Candidate Starts for Gorgeous\_61:

(Start: 56 @41469 has 12 MA's), (72, 41382), (76, 41361), (82, 41349), (85, 41307), (90, 41280), (96, 41268), (99, 41253), (146, 41019), (155, 40944),

Gene: GrandSlam\_47 Start: 34404, Stop: 35291, Start Num: 20

Candidate Starts for GrandSlam\_47:

(7, 34176), (10, 34251), (11, 34260), (14, 34299), (Start: 20 @34404 has 15 MA's), (23, 34425), (48, 34515), (53, 34542), (57, 34560), (71, 34629), (125, 34914), (127, 34923), (129, 34929), (144, 35016), (145, 35019), (150, 35061), (153, 35088), (159, 35115), (161, 35121), (165, 35130), (169, 35139),

Gene: Guanica15\_64 Start: 41115, Stop: 42020, Start Num: 31

Candidate Starts for Guanica15\_64:

(Start: 31 @41115 has 142 MA's), (62, 41226), (79, 41325), (114, 41565), (121, 41619), (135, 41703), (150, 41808), (164, 41874), (177, 41925), (178, 41934), (179, 41949),

Gene: Hammy\_60 Start: 41420, Stop: 42289, Start Num: 31

Candidate Starts for Hammy\_60:

(Start: 31 @41420 has 142 MA's), (62, 41531), (78, 41624), (101, 41780), (112, 41840), (114, 41846), (135, 41975), (142, 42032), (150, 42080), (153, 42107), (165, 42149), (177, 42197), (179, 42221),

Gene: Hamood\_47 Start: 34404, Stop: 35291, Start Num: 20

Candidate Starts for Hamood\_47:

(7, 34176), (10, 34251), (11, 34260), (14, 34299), (Start: 20 @34404 has 15 MA's), (23, 34425), (48, 34515), (53, 34542), (57, 34560), (71, 34629), (125, 34914), (127, 34923), (129, 34929), (144, 35016), (145, 35019), (150, 35061), (153, 35088), (159, 35115), (161, 35121), (165, 35130), (169, 35139),

Gene: Heinz\_40 Start: 27117, Stop: 27878, Start Num: 36

Candidate Starts for Heinz\_40:

(Start: 36 @27117 has 4 MA's), (58, 27183), (81, 27294), (88, 27366), (89, 27369), (124, 27525), (126, 27531), (135, 27567), (146, 27633), (165, 27741), (179, 27813),

Gene: Heylee\_64 Start: 41647, Stop: 41006, Start Num: 56

Candidate Starts for Heylee\_64:

(Start: 56 @41647 has 12 MA's), (72, 41560), (76, 41539), (82, 41527), (85, 41485), (90, 41458), (96, 41446), (99, 41431), (146, 41197), (155, 41122),

Gene: Hibiscus\_40 Start: 27066, Stop: 27827, Start Num: 36

Candidate Starts for Hibiscus\_40:

(Start: 36 @27066 has 4 MA's), (58, 27132), (81, 27243), (88, 27315), (89, 27318), (124, 27474), (126, 27480), (135, 27516), (146, 27582), (165, 27690), (179, 27762),

Gene: Homura\_61 Start: 41411, Stop: 42289, Start Num: 31

Candidate Starts for Homura\_61:

(Start: 31 @41411 has 142 MA's), (62, 41522), (79, 41621), (114, 41843), (121, 41897), (135, 41972), (142, 42029), (150, 42077), (164, 42143), (176, 42191), (178, 42203), (179, 42218),

Gene: HotPotato\_45 Start: 30670, Stop: 31515, Start Num: 29

Candidate Starts for HotPotato\_45:

(29, 30670), (Start: 34 @30691 has 9 MA's), (Start: 41 @30715 has 1 MA's), (63, 30802), (66, 30814), (72, 30862), (80, 30898), (86, 30946), (142, 31246), (144, 31249), (153, 31321), (158, 31345), (173, 31393), (190, 31498),

Gene: Hurricane\_60 Start: 41376, Stop: 42275, Start Num: 31

Candidate Starts for Hurricane\_60:

(Start: 31 @41376 has 142 MA's), (62, 41487), (79, 41586), (82, 41595), (91, 41673), (101, 41736), (102, 41748), (103, 41766), (112, 41823), (135, 41958), (142, 42015), (150, 42063), (165, 42132), (175, 42171), (177, 42180), (179, 42204),

Gene: Hyperbowlee\_61 Start: 41608, Stop: 42486, Start Num: 31

Candidate Starts for Hyperbowlee\_61:

(Start: 31 @41608 has 142 MA's), (62, 41719), (79, 41818), (114, 42040), (121, 42094), (135, 42169), (142, 42226), (150, 42274), (164, 42340), (176, 42388), (178, 42400), (179, 42415),

Gene: Ichor\_61 Start: 41862, Stop: 41221, Start Num: 56

Candidate Starts for Ichor\_61:

(Start: 56 @41862 has 12 MA's), (72, 41775), (76, 41754), (82, 41742), (85, 41700), (90, 41673), (96, 41661), (99, 41646), (146, 41412), (155, 41337),

Gene: Idergollasper\_12 Start: 4748, Stop: 5497, Start Num: 46

Candidate Starts for Idergollasper\_12:

(Start: 46 @4748 has 29 MA's), (62, 4814), (75, 4892), (81, 4916), (87, 4976), (95, 5018), (110, 5054), (121, 5114), (142, 5243), (150, 5291), (156, 5330), (172, 5378),

Gene: Illumine\_66 Start: 42825, Stop: 43712, Start Num: 31

Candidate Starts for Illumine\_66:

(Start: 31 @42825 has 142 MA's), (62, 42936), (76, 43023), (79, 43035), (114, 43257), (121, 43311), (135, 43395), (142, 43452), (150, 43500), (164, 43566), (177, 43617), (178, 43626), (179, 43641),

Gene: Inky\_61 Start: 41411, Stop: 42289, Start Num: 31

Candidate Starts for Inky\_61:

(Start: 31 @41411 has 142 MA's), (62, 41522), (79, 41621), (114, 41843), (121, 41897), (135, 41972), (142, 42029), (150, 42077), (164, 42143), (176, 42191), (178, 42203), (179, 42218),

Gene: JAWS\_61 Start: 41260, Stop: 42138, Start Num: 31

Candidate Starts for JAWS\_61:

(Start: 31 @41260 has 142 MA's), (62, 41371), (79, 41470), (101, 41620), (114, 41692), (121, 41746), (135, 41821), (142, 41878), (150, 41926), (164, 41992), (176, 42040), (178, 42052), (179, 42067),

Gene: JF1\_64 Start: 41076, Stop: 41939, Start Num: 31

Candidate Starts for JF1\_64:

(23, 41040), (25, 41055), (Start: 31 @41076 has 142 MA's), (45, 41109), (50, 41130), (Start: 55 @41145 has 1 MA's), (69, 41205), (112, 41484), (114, 41490), (132, 41607), (142, 41676), (150, 41724), (165, 41793), (185, 41901), (186, 41904),

Gene: Jaek\_61 Start: 41862, Stop: 41221, Start Num: 56

Candidate Starts for Jaek\_61:

(Start: 56 @41862 has 12 MA's), (72, 41775), (76, 41754), (82, 41742), (85, 41700), (90, 41673), (96, 41661), (99, 41646), (146, 41412), (155, 41337),

Gene: JangDynasty\_12 Start: 4837, Stop: 5586, Start Num: 46

Candidate Starts for JangDynasty\_12:

(Start: 46 @4837 has 29 MA's), (62, 4903), (75, 4981), (81, 5005), (87, 5065), (95, 5107), (110, 5143), (121, 5203), (142, 5332), (150, 5380), (156, 5419), (172, 5467),

Gene: Jarvi\_61 Start: 41411, Stop: 42289, Start Num: 31

Candidate Starts for Jarvi\_61:

(Start: 31 @41411 has 142 MA's), (62, 41522), (79, 41621), (114, 41843), (121, 41897), (135, 41972), (142, 42029), (150, 42077), (164, 42143), (176, 42191), (178, 42203), (179, 42218),

Gene: Jayhawk\_62 Start: 41281, Stop: 42168, Start Num: 31

Candidate Starts for Jayhawk\_62:

(Start: 31 @41281 has 142 MA's), (62, 41392), (69, 41428), (79, 41491), (101, 41641), (114, 41713), (121, 41767), (135, 41851), (142, 41908), (150, 41956), (164, 42022), (177, 42073), (178, 42082), (179, 42097), (188, 42139),

Gene: Jeckyll\_61 Start: 41411, Stop: 42289, Start Num: 31

Candidate Starts for Jeckyll\_61:

(Start: 31 @41411 has 142 MA's), (62, 41522), (79, 41621), (114, 41843), (121, 41897), (135, 41972), (142, 42029), (150, 42077), (164, 42143), (176, 42191), (178, 42203), (179, 42218),

Gene: Jflix2\_69 Start: 43814, Stop: 44623, Start Num: 42

Candidate Starts for Jflix2\_69:

(Start: 42 @43814 has 2 MA's), (53, 43853), (64, 43892), (76, 43976), (79, 43988), (87, 44051), (89, 44063), (91, 44075), (121, 44183), (146, 44324), (165, 44432), (179, 44507), (194, 44600),

Gene: Jojo24\_38 Start: 27664, Stop: 28428, Start Num: 35

Candidate Starts for Jojo24\_38:

(Start: 35 @27664 has 1 MA's), (58, 27733), (81, 27844), (88, 27916), (89, 27919), (124, 28075), (126, 28081), (135, 28117), (146, 28183), (165, 28291), (179, 28363),

Gene: Joy99\_61 Start: 41340, Stop: 42218, Start Num: 31

Candidate Starts for Joy99\_61:

(Start: 31 @41340 has 142 MA's), (62, 41451), (79, 41550), (114, 41772), (121, 41826), (135, 41901), (142, 41958), (150, 42006), (164, 42072), (176, 42120), (178, 42132), (179, 42147),

Gene: Judy\_49 Start: 31513, Stop: 32319, Start Num: 34

Candidate Starts for Judy\_49:

(Start: 34 @31513 has 9 MA's), (Start: 41 @31537 has 1 MA's), (49, 31561), (63, 31624), (66, 31636), (72, 31684), (107, 31849), (121, 31936), (139, 32044), (142, 32068), (144, 32071), (158, 32167), (173, 32215),

Gene: Juliette\_66 Start: 41223, Stop: 42086, Start Num: 31

Candidate Starts for Juliette\_66:

(23, 41187), (25, 41202), (Start: 31 @41223 has 142 MA's), (45, 41256), (50, 41277), (69, 41352), (112, 41631), (114, 41637), (123, 41700), (132, 41754), (142, 41823), (150, 41871), (165, 41940), (185, 42048), (186, 42051),

Gene: Karkharias\_46 Start: 30610, Stop: 31416, Start Num: 34

Candidate Starts for Karkharias\_46:

(26, 30586), (Start: 34 @30610 has 9 MA's), (38, 30619), (Start: 41 @30634 has 1 MA's), (63, 30721), (66, 30733), (72, 30781), (107, 30946), (139, 31141), (142, 31165), (144, 31168), (158, 31264),

Gene: KayMoney\_46 Start: 30029, Stop: 30835, Start Num: 34

Candidate Starts for KayMoney\_46:

(Start: 34 @30029 has 9 MA's), (Start: 41 @30053 has 1 MA's), (63, 30140), (66, 30152), (72, 30200), (107, 30365), (121, 30452), (139, 30560), (142, 30584), (144, 30587), (158, 30683), (173, 30731),

Gene: Keshu\_62 Start: 41474, Stop: 42373, Start Num: 31

Candidate Starts for Keshu\_62:

(Start: 31 @41474 has 142 MA's), (62, 41585), (79, 41684), (82, 41693), (91, 41771), (101, 41834), (102, 41846), (103, 41864), (112, 41921), (135, 42056), (142, 42113), (150, 42161), (165, 42230), (177, 42278), (179, 42302),

Gene: KiSi\_65 Start: 42230, Stop: 43150, Start Num: 31

Candidate Starts for KiSi\_65:

(Start: 31 @42230 has 142 MA's), (62, 42341), (81, 42443), (101, 42590), (112, 42656), (114, 42662), (121, 42716), (131, 42785), (148, 42899), (149, 42902), (150, 42917), (153, 42944), (165, 42986), (176, 43031), (179, 43058), (182, 43076),

Gene: KingPhillip3\_12 Start: 4748, Stop: 5497, Start Num: 46

Candidate Starts for KingPhillip3\_12:

(Start: 46 @4748 has 29 MA's), (62, 4814), (75, 4892), (81, 4916), (87, 4976), (95, 5018), (110, 5054), (121, 5114), (142, 5243), (150, 5291), (156, 5330), (172, 5378),

Gene: Kraw\_65 Start: 40911, Stop: 41774, Start Num: 31

Candidate Starts for Kraw\_65:

(23, 40875), (25, 40890), (Start: 31 @40911 has 142 MA's), (45, 40944), (50, 40965), (69, 41040), (112, 41319), (114, 41325), (123, 41388), (132, 41442), (142, 41511), (150, 41559), (165, 41628), (185, 41736), (186, 41739),

Gene: Krili\_13 Start: 5076, Stop: 5825, Start Num: 46

Candidate Starts for Krili\_13:

(Start: 46 @5076 has 29 MA's), (62, 5142), (75, 5220), (81, 5244), (87, 5304), (95, 5346), (110, 5382), (121, 5442), (142, 5571), (150, 5619), (156, 5658), (172, 5706),

Gene: LastHope\_64 Start: 40454, Stop: 41341, Start Num: 31

Candidate Starts for LastHope\_64:

(Start: 31 @40454 has 142 MA's), (62, 40565), (79, 40664), (101, 40814), (114, 40886), (121, 40940), (135, 41024), (142, 41081), (150, 41129), (164, 41195), (177, 41246), (179, 41270),

Gene: LaterM\_61 Start: 41874, Stop: 42761, Start Num: 31

Candidate Starts for LaterM\_61:

(Start: 31 @41874 has 142 MA's), (62, 41985), (79, 42084), (114, 42306), (121, 42360), (135, 42444), (142, 42501), (150, 42549), (164, 42615), (177, 42666), (178, 42675), (179, 42690),

Gene: LeMond\_64 Start: 41861, Stop: 42784, Start Num: 31

Candidate Starts for LeMond\_64:

(Start: 31 @41861 has 142 MA's), (62, 41972), (81, 42074), (101, 42221), (112, 42287), (114, 42293), (121, 42350), (131, 42419), (148, 42533), (149, 42536), (150, 42551), (153, 42578), (165, 42620), (179, 42692), (182, 42710),

Gene: Lea83\_61 Start: 41429, Stop: 42310, Start Num: 31

Candidate Starts for Lea83\_61:

(Start: 31 @41429 has 142 MA's), (62, 41540), (72, 41603), (79, 41639), (82, 41648), (91, 41726), (97, 41762), (112, 41858), (135, 41993), (142, 42050), (150, 42098), (165, 42167), (176, 42212), (177, 42215), (179, 42239),

Gene: Lebo14\_65 Start: 41244, Stop: 42107, Start Num: 31

Candidate Starts for Lebo14\_65:

(23, 41208), (25, 41223), (Start: 31 @41244 has 142 MA's), (45, 41277), (50, 41298), (69, 41373), (112, 41652), (114, 41658), (123, 41721), (132, 41775), (142, 41844), (150, 41892), (165, 41961), (185, 42069), (186, 42072),

Gene: LilPharaoh\_50 Start: 38323, Stop: 39210, Start Num: 31

Candidate Starts for LilPharaoh\_50:

(Start: 31 @38323 has 142 MA's), (62, 38434), (79, 38533), (101, 38683), (106, 38716), (114, 38755), (121, 38809), (135, 38893), (141, 38941), (142, 38950), (147, 38965), (150, 38998), (176, 39112), (179, 39139),

Gene: LindNT\_60 Start: 41483, Stop: 42361, Start Num: 31

Candidate Starts for LindNT\_60:

(Start: 31 @41483 has 142 MA's), (62, 41594), (79, 41693), (114, 41915), (121, 41969), (135, 42044), (142, 42101), (150, 42149), (164, 42215), (176, 42263), (178, 42275), (179, 42290),

Gene: Llorens\_61 Start: 41411, Stop: 42289, Start Num: 31

Candidate Starts for Llorens\_61:

(Start: 31 @41411 has 142 MA's), (62, 41522), (79, 41621), (114, 41843), (121, 41897), (135, 41972), (142, 42029), (150, 42077), (164, 42143), (176, 42191), (178, 42203), (179, 42218),

Gene: Lunahalos\_61 Start: 41411, Stop: 42289, Start Num: 31

Candidate Starts for Lunahalos\_61:

(Start: 31 @41411 has 142 MA's), (62, 41522), (79, 41621), (114, 41843), (121, 41897), (135, 41972), (142, 42029), (150, 42077), (164, 42143), (176, 42191), (178, 42203), (179, 42218),

Gene: MacKat\_56 Start: 36743, Stop: 37621, Start Num: 31

Candidate Starts for MacKat\_56:

(Start: 31 @36743 has 142 MA's), (62, 36854), (79, 36953), (101, 37103), (114, 37175), (121, 37229), (135, 37304), (142, 37361), (150, 37409), (164, 37475), (176, 37523), (178, 37535), (179, 37550),

Gene: MacnCheese\_62 Start: 41974, Stop: 42873, Start Num: 31

Candidate Starts for MacnCheese\_62:

(Start: 31 @41974 has 142 MA's), (62, 42085), (79, 42184), (82, 42193), (91, 42271), (101, 42334), (102, 42346), (103, 42364), (112, 42421), (114, 42427), (135, 42556), (142, 42613), (150, 42661), (165, 42730), (179, 42802),

Gene: MadKillah\_14 Start: 5097, Stop: 5846, Start Num: 46

Candidate Starts for MadKillah\_14:

(Start: 46 @5097 has 29 MA's), (62, 5163), (75, 5241), (81, 5265), (87, 5325), (95, 5367), (110, 5403), (121, 5463), (142, 5592), (150, 5640), (156, 5679), (172, 5727),

Gene: Madraxi\_73 Start: 46508, Stop: 47317, Start Num: 42

Candidate Starts for Madraxi\_73:

(Start: 42 @46508 has 2 MA's), (53, 46547), (76, 46670), (79, 46682), (87, 46745), (89, 46757), (91, 46769), (121, 46877), (146, 47018), (165, 47126), (179, 47201), (194, 47294),

Gene: MalagasyRose\_61 Start: 40415, Stop: 41278, Start Num: 31

Candidate Starts for MalagasyRose\_61:

(Start: 31 @40415 has 142 MA's), (39, 40439), (Start: 56 @40508 has 12 MA's), (62, 40529), (70, 40571), (72, 40592), (77, 40619), (91, 40715), (105, 40793), (112, 40826), (114, 40832), (121, 40886), (137, 40973), (141, 41009), (150, 41066), (154, 41096), (155, 41099), (164, 41132), (175, 41174), (178, 41192), (179, 41207),

Gene: Malthus\_65 Start: 40911, Stop: 41774, Start Num: 31

Candidate Starts for Malthus\_65:

(23, 40875), (25, 40890), (Start: 31 @40911 has 142 MA's), (45, 40944), (50, 40965), (69, 41040), (112, 41319), (114, 41325), (123, 41388), (132, 41442), (142, 41511), (150, 41559), (165, 41628), (185, 41736), (186, 41739),

Gene: Marcoliusprime\_62 Start: 43382, Stop: 44239, Start Num: 31

Candidate Starts for Marcoliusprime\_62:

(Start: 31 @43382 has 142 MA's), (62, 43487), (79, 43586), (114, 43796), (150, 44030), (165, 44099), (177, 44147), (178, 44156), (179, 44171),

Gene: Marshawn\_60 Start: 41598, Stop: 42494, Start Num: 31

Candidate Starts for Marshawn\_60:

(5, 41262), (15, 41436), (Start: 20 @41547 has 15 MA's), (Start: 31 @41598 has 142 MA's), (62, 41709), (76, 41796), (81, 41811), (101, 41958), (112, 42024), (114, 42030), (121, 42084), (131, 42153), (135, 42180), (142, 42237), (179, 42426), (182, 42444),

Gene: McMater\_62 Start: 41510, Stop: 42397, Start Num: 31

Candidate Starts for McMater\_62:

(Start: 31 @41510 has 142 MA's), (62, 41621), (79, 41720), (81, 41723), (101, 41870), (112, 41936), (114, 41942), (121, 41996), (135, 42080), (142, 42137), (150, 42185), (177, 42302), (178, 42311), (179, 42326), (184, 42350), (187, 42365),

Gene: Mdavu\_51 Start: 38584, Stop: 39471, Start Num: 31

Candidate Starts for Mdavu\_51:

(Start: 31 @38584 has 142 MA's), (62, 38695), (79, 38794), (101, 38944), (106, 38977), (114, 39016), (121, 39070), (135, 39154), (141, 39202), (142, 39211), (147, 39226), (150, 39259), (176, 39373), (179, 39400),



Gene: MeaningOfLife\_62 Start: 42154, Stop: 43041, Start Num: 31

Candidate Starts for MeaningOfLife\_62:

(Start: 31 @42154 has 142 MA's), (62, 42265), (79, 42364), (101, 42514), (114, 42586), (121, 42640), (135, 42724), (142, 42781), (149, 42814), (150, 42829), (164, 42895), (178, 42955), (179, 42970), (188, 43012),

Gene: Megsy\_63 Start: 41551, Stop: 42438, Start Num: 31

Candidate Starts for Megsy\_63:

(Start: 31 @41551 has 142 MA's), (62, 41662), (79, 41761), (114, 41983), (121, 42037), (135, 42121), (142, 42178), (150, 42226), (164, 42292), (177, 42343), (178, 42352), (179, 42367),

Gene: Milly\_62 Start: 43355, Stop: 44212, Start Num: 31

Candidate Starts for Milly\_62:

(Start: 31 @43355 has 142 MA's), (62, 43460), (79, 43559), (114, 43769), (150, 44003), (165, 44072), (177, 44120), (178, 44129), (179, 44144),

Gene: MissDaisy\_61 Start: 39823, Stop: 40686, Start Num: 31

Candidate Starts for MissDaisy\_61:

(16, 39658), (25, 39802), (Start: 31 @39823 has 142 MA's), (68, 39934), (69, 39952), (82, 40024), (84, 40054), (114, 40237), (121, 40291), (142, 40423), (185, 40648), (186, 40651),

Gene: Mitti\_64 Start: 41090, Stop: 41953, Start Num: 31

Candidate Starts for Mitti\_64:

(23, 41054), (25, 41069), (Start: 31 @41090 has 142 MA's), (45, 41123), (50, 41144), (69, 41219), (112, 41498), (114, 41504), (123, 41567), (132, 41621), (142, 41690), (150, 41738), (165, 41807), (185, 41915), (186, 41918),

Gene: Molivia\_63 Start: 40276, Stop: 39626, Start Num: 54

Candidate Starts for Molivia\_63:

(40, 40333), (Start: 54 @40276 has 1 MA's), (72, 40183), (78, 40156), (82, 40150), (84, 40117), (85, 40108), (90, 40081), (96, 40069), (99, 40054), (128, 39913), (146, 39820),

Gene: Mori\_13 Start: 4936, Stop: 5685, Start Num: 46

Candidate Starts for Mori\_13:

(Start: 46 @4936 has 29 MA's), (62, 5002), (75, 5080), (81, 5104), (87, 5164), (95, 5206), (110, 5242), (121, 5302), (142, 5431), (150, 5479), (156, 5518), (172, 5566),

Gene: Mufasa\_62 Start: 42945, Stop: 43802, Start Num: 31

Candidate Starts for Mufasa\_62:

(Start: 31 @42945 has 142 MA's), (62, 43050), (79, 43149), (114, 43359), (150, 43593), (165, 43662), (177, 43710), (178, 43719), (179, 43734),

Gene: Mulch\_47 Start: 33927, Stop: 34814, Start Num: 20

Candidate Starts for Mulch\_47:

(10, 33774), (11, 33783), (14, 33822), (Start: 20 @33927 has 15 MA's), (23, 33948), (48, 34038), (53, 34065), (57, 34083), (125, 34437), (127, 34446), (129, 34452), (144, 34539), (145, 34542), (150, 34584), (153, 34611), (159, 34638), (161, 34644), (165, 34653), (169, 34662),

Gene: Murai\_13 Start: 4936, Stop: 5685, Start Num: 46

Candidate Starts for Murai\_13:

(Start: 46 @4936 has 29 MA's), (62, 5002), (75, 5080), (81, 5104), (87, 5164), (95, 5206), (110, 5242), (121, 5302), (142, 5431), (150, 5479), (156, 5518), (172, 5566),

Gene: Murucutumbu\_62 Start: 42254, Stop: 43141, Start Num: 31

Candidate Starts for Murucutumbu\_62:

(Start: 31 @42254 has 142 MA's), (62, 42365), (79, 42464), (114, 42686), (121, 42740), (135, 42824), (142, 42881), (150, 42929), (164, 42995), (177, 43046), (178, 43055), (179, 43070),

Gene: Mynx\_62 Start: 41596, Stop: 42474, Start Num: 31

Candidate Starts for Mynx\_62:

(Start: 31 @41596 has 142 MA's), (62, 41707), (79, 41806), (101, 41956), (114, 42028), (121, 42082), (135, 42157), (142, 42214), (150, 42262), (164, 42328), (176, 42376), (178, 42388), (179, 42403),

Gene: Nadeem\_47 Start: 33927, Stop: 34814, Start Num: 20

Candidate Starts for Nadeem\_47:

(10, 33774), (11, 33783), (14, 33822), (Start: 20 @33927 has 15 MA's), (23, 33948), (48, 34038), (53, 34065), (57, 34083), (125, 34437), (127, 34446), (129, 34452), (144, 34539), (145, 34542), (150, 34584), (153, 34611), (159, 34638), (161, 34644), (165, 34653), (169, 34662),

Gene: NancyRae\_47 Start: 33937, Stop: 34824, Start Num: 20

Candidate Starts for NancyRae\_47:

(10, 33784), (11, 33793), (14, 33832), (Start: 20 @33937 has 15 MA's), (23, 33958), (48, 34048), (53, 34075), (57, 34093), (71, 34162), (125, 34447), (127, 34456), (129, 34462), (144, 34549), (145, 34552), (150, 34594), (153, 34621), (159, 34648), (161, 34654), (165, 34663), (169, 34672),

Gene: NiebruSaylor\_13 Start: 4936, Stop: 5685, Start Num: 46

Candidate Starts for NiebruSaylor\_13:

(Start: 46 @4936 has 29 MA's), (62, 5002), (75, 5080), (81, 5104), (87, 5164), (95, 5206), (110, 5242), (121, 5302), (142, 5431), (150, 5479), (156, 5518), (172, 5566),

Gene: Nikao\_53 Start: 41208, Stop: 42095, Start Num: 31

Candidate Starts for Nikao\_53:

(Start: 31 @41208 has 142 MA's), (62, 41319), (79, 41418), (101, 41568), (106, 41601), (114, 41640), (121, 41694), (135, 41778), (141, 41826), (142, 41835), (147, 41850), (150, 41883), (176, 41997), (179, 42024),

Gene: Niklas\_62 Start: 41571, Stop: 42458, Start Num: 31

Candidate Starts for Niklas\_62:

(Start: 31 @41571 has 142 MA's), (62, 41682), (79, 41781), (81, 41784), (101, 41931), (112, 41997), (114, 42003), (121, 42057), (135, 42141), (142, 42198), (150, 42246), (177, 42363), (178, 42372), (179, 42387), (184, 42411), (187, 42426),

Gene: NoSwimming\_41 Start: 29687, Stop: 30514, Start Num: 34

Candidate Starts for NoSwimming\_41:

(Start: 34 @29687 has 9 MA's), (63, 29798), (66, 29810), (67, 29813), (72, 29858), (111, 30038), (144, 30245), (157, 30332), (158, 30341), (172, 30377),

Gene: Nonagon\_64 Start: 42467, Stop: 41757, Start Num: 52

Candidate Starts for Nonagon\_64:

(Start: 52 @42467 has 2 MA's), (59, 42434), (72, 42359), (82, 42323), (84, 42293), (92, 42242), (93, 42236), (98, 42197), (111, 42161), (116, 42128), (117, 42110), (130, 42029), (134, 42014), (137, 41999), (141, 41963), (143, 41951), (146, 41945), (152, 41894), (171, 41831),

Gene: Nutello\_50 Start: 38595, Stop: 39482, Start Num: 31

Candidate Starts for Nutello\_50:

(Start: 31 @38595 has 142 MA's), (62, 38706), (79, 38805), (101, 38955), (106, 38988), (114, 39027), (121, 39081), (135, 39165), (141, 39213), (142, 39222), (147, 39237), (150, 39270), (176, 39384), (179, 39411),

Gene: OmniCritical\_63 Start: 40980, Stop: 41843, Start Num: 31

Candidate Starts for OmniCritical\_63:

(23, 40944), (25, 40959), (Start: 31 @40980 has 142 MA's), (45, 41013), (50, 41034), (69, 41109), (112, 41388), (114, 41394), (123, 41457), (132, 41511), (142, 41580), (150, 41628), (165, 41697), (185, 41805), (186, 41808),

Gene: Omnicron\_59 Start: 40704, Stop: 41564, Start Num: 31

Candidate Starts for Omnicron\_59:

(Start: 31 @40704 has 142 MA's), (57, 40800), (60, 40809), (62, 40818), (71, 40866), (82, 40926), (101, 41067), (105, 41079), (121, 41172), (133, 41238), (137, 41259), (141, 41295), (149, 41337), (153, 41379), (156, 41391), (163, 41415), (167, 41424), (178, 41478), (188, 41535), (192, 41556),

Gene: Oscar\_64 Start: 41778, Stop: 42701, Start Num: 31

Candidate Starts for Oscar\_64:

(30, 41772), (Start: 31 @41778 has 142 MA's), (62, 41889), (81, 41991), (101, 42138), (112, 42204), (114, 42210), (121, 42267), (131, 42336), (148, 42450), (149, 42453), (150, 42468), (153, 42495), (165, 42537), (179, 42609), (182, 42627),

Gene: Padfoot\_61 Start: 41608, Stop: 42486, Start Num: 31

Candidate Starts for Padfoot\_61:

(Start: 31 @41608 has 142 MA's), (62, 41719), (79, 41818), (114, 42040), (121, 42094), (135, 42169), (142, 42226), (150, 42274), (164, 42340), (176, 42388), (178, 42400), (179, 42415),

Gene: Padpat\_63 Start: 41277, Stop: 42155, Start Num: 31

Candidate Starts for Padpat\_63:

(Start: 31 @41277 has 142 MA's), (62, 41388), (79, 41487), (101, 41637), (114, 41709), (121, 41763), (135, 41838), (142, 41895), (150, 41943), (164, 42009), (176, 42057), (178, 42069), (179, 42084),

Gene: Parada\_47 Start: 33927, Stop: 34814, Start Num: 20

Candidate Starts for Parada\_47:

(10, 33774), (11, 33783), (14, 33822), (Start: 20 @33927 has 15 MA's), (23, 33948), (48, 34038), (53, 34065), (57, 34083), (125, 34437), (127, 34446), (129, 34452), (144, 34539), (145, 34542), (150, 34584), (153, 34611), (159, 34638), (161, 34644), (165, 34653), (169, 34662),

Gene: Patt\_60 Start: 39547, Stop: 40410, Start Num: 31

Candidate Starts for Patt\_60:

(16, 39382), (25, 39526), (Start: 31 @39547 has 142 MA's), (68, 39658), (69, 39676), (82, 39748), (84, 39778), (114, 39961), (121, 40015), (142, 40147), (185, 40372), (186, 40375),

Gene: Peanam\_62 Start: 41529, Stop: 42416, Start Num: 31

Candidate Starts for Peanam\_62:

(Start: 31 @41529 has 142 MA's), (62, 41640), (79, 41739), (81, 41742), (101, 41889), (112, 41955), (114, 41961), (121, 42015), (135, 42099), (142, 42156), (150, 42204), (177, 42321), (178, 42330), (179, 42345), (184, 42369), (187, 42384),

Gene: Peas\_45 Start: 31548, Stop: 32372, Start Num: 34

Candidate Starts for Peas\_45:

(Start: 34 @31548 has 9 MA's), (63, 31659), (66, 31671), (72, 31719), (86, 31803), (142, 32103), (144, 32106), (153, 32178), (158, 32202), (173, 32250), (190, 32355),

Gene: Peel\_61 Start: 41413, Stop: 42291, Start Num: 31

Candidate Starts for Peel\_61:

(Start: 31 @41413 has 142 MA's), (62, 41524), (79, 41623), (114, 41845), (121, 41899), (135, 41974), (142, 42031), (150, 42079), (164, 42145), (176, 42193), (178, 42205), (179, 42220),

Gene: PeggyLeg03\_46 Start: 30698, Stop: 31504, Start Num: 34

Candidate Starts for PeggyLeg03\_46:

(Start: 34 @30698 has 9 MA's), (Start: 41 @30722 has 1 MA's), (49, 30746), (63, 30809), (66, 30821), (72, 30869), (107, 31034), (121, 31121), (139, 31229), (142, 31253), (144, 31256), (158, 31352), (173, 31400),

Gene: Piatt\_61 Start: 41608, Stop: 42486, Start Num: 31

Candidate Starts for Piatt\_61:

(Start: 31 @41608 has 142 MA's), (62, 41719), (79, 41818), (114, 42040), (121, 42094), (135, 42169), (142, 42226), (150, 42274), (164, 42340), (176, 42388), (178, 42400), (179, 42415),

Gene: Pimento\_48 Start: 33578, Stop: 34405, Start Num: 20

Candidate Starts for Pimento\_48:

(10, 33425), (11, 33434), (14, 33473), (Start: 20 @33578 has 15 MA's), (37, 33602), (53, 33656), (57, 33674), (71, 33743), (125, 34028), (127, 34037), (129, 34043), (144, 34130), (145, 34133), (153, 34202), (159, 34229), (161, 34235), (165, 34244), (169, 34253),

Gene: Pixie\_59 Start: 40914, Stop: 41795, Start Num: 31

Candidate Starts for Pixie\_59:

(Start: 31 @40914 has 142 MA's), (62, 41025), (72, 41088), (79, 41124), (82, 41133), (91, 41211), (112, 41343), (135, 41478), (142, 41535), (150, 41583), (165, 41652), (176, 41697), (177, 41700), (179, 41724),

Gene: Pokerus\_60 Start: 41329, Stop: 42207, Start Num: 31

Candidate Starts for Pokerus\_60:

(Start: 31 @41329 has 142 MA's), (57, 41422), (62, 41440), (79, 41539), (101, 41689), (114, 41761), (135, 41890), (142, 41947), (150, 41995), (164, 42061), (176, 42109), (178, 42121), (179, 42136),

Gene: Prithvi\_62 Start: 41483, Stop: 42361, Start Num: 31

Candidate Starts for Prithvi\_62:

(Start: 31 @41483 has 142 MA's), (62, 41594), (79, 41693), (114, 41915), (121, 41969), (135, 42044), (142, 42101), (150, 42149), (164, 42215), (176, 42263), (178, 42275), (179, 42290),

Gene: Pucara\_43 Start: 30303, Stop: 31109, Start Num: 34

Candidate Starts for Pucara\_43:

(Start: 34 @30303 has 9 MA's), (Start: 41 @30327 has 1 MA's), (49, 30351), (63, 30414), (66, 30426), (72, 30474), (107, 30639), (121, 30726), (139, 30834), (142, 30858), (144, 30861), (158, 30957), (173, 31005),

Gene: QuincyRose\_60 Start: 41672, Stop: 42550, Start Num: 31

Candidate Starts for QuincyRose\_60:

(Start: 31 @41672 has 142 MA's), (62, 41783), (79, 41882), (101, 42032), (114, 42104), (121, 42158), (135, 42233), (142, 42290), (150, 42338), (164, 42404), (176, 42452), (178, 42464), (179, 42479),

Gene: REQ1\_38 Start: 15432, Stop: 16226, Start Num: 42

Candidate Starts for REQ1\_38:

(Start: 42 @15432 has 2 MA's), (53, 15471), (73, 15576), (74, 15579), (76, 15594), (79, 15606), (87, 15669), (89, 15681), (91, 15693), (121, 15801), (136, 15882), (146, 15942), (179, 16125),

Gene: Rapunzel97\_62 Start: 41275, Stop: 42162, Start Num: 31

Candidate Starts for Rapunzel97\_62:

(Start: 31 @41275 has 142 MA's), (57, 41368), (62, 41386), (79, 41485), (101, 41635), (114, 41707), (121, 41761), (135, 41845), (142, 41902), (150, 41950), (164, 42016), (178, 42076), (179, 42091), (188, 42133),

Gene: Reptar3000\_61 Start: 39535, Stop: 40398, Start Num: 31

Candidate Starts for Reptar3000\_61:

(16, 39370), (25, 39514), (Start: 31 @39535 has 142 MA's), (68, 39646), (69, 39664), (82, 39736), (84, 39766), (114, 39949), (121, 40003), (142, 40135), (185, 40360), (186, 40363),

Gene: Reyja\_39 Start: 28104, Stop: 28865, Start Num: 36

Candidate Starts for Reyja\_39:

(Start: 36 @28104 has 4 MA's), (58, 28170), (81, 28281), (89, 28356), (91, 28368), (124, 28512), (139, 28587), (142, 28611), (146, 28620), (155, 28692), (158, 28710), (165, 28728), (179, 28800),

Gene: Richo\_62 Start: 41510, Stop: 42397, Start Num: 31

Candidate Starts for Richo\_62:

(Start: 31 @41510 has 142 MA's), (62, 41621), (79, 41720), (81, 41723), (101, 41870), (112, 41936), (114, 41942), (121, 41996), (135, 42080), (142, 42137), (150, 42185), (177, 42302), (178, 42311), (179, 42326), (184, 42350), (187, 42365),

Gene: Rings\_62 Start: 41910, Stop: 41269, Start Num: 56

Candidate Starts for Rings\_62:

(Start: 56 @41910 has 12 MA's), (72, 41823), (76, 41802), (82, 41790), (85, 41748), (90, 41721), (96, 41709), (99, 41694), (146, 41460), (155, 41385),

Gene: RootBeer\_37 Start: 26799, Stop: 27602, Start Num: 34

Candidate Starts for RootBeer\_37:

(Start: 34 @26799 has 9 MA's), (Start: 41 @26823 has 1 MA's), (63, 26910), (66, 26922), (67, 26925), (72, 26970), (107, 27135), (121, 27222), (142, 27354), (144, 27357), (158, 27453),

Gene: Rosmarinus\_61 Start: 41399, Stop: 42277, Start Num: 31

Candidate Starts for Rosmarinus\_61:

(Start: 31 @41399 has 142 MA's), (62, 41510), (79, 41609), (114, 41831), (121, 41885), (135, 41960), (142, 42017), (150, 42065), (164, 42131), (176, 42179), (178, 42191), (179, 42206),

Gene: Ruthiejr\_65 Start: 40961, Stop: 41824, Start Num: 31

Candidate Starts for Ruthiejr\_65:

(23, 40925), (25, 40940), (Start: 31 @40961 has 142 MA's), (45, 40994), (50, 41015), (69, 41090), (112, 41369), (114, 41375), (123, 41438), (132, 41492), (142, 41561), (150, 41609), (165, 41678), (185, 41786), (186, 41789),

Gene: Ryadel\_15 Start: 5530, Stop: 6279, Start Num: 46

Candidate Starts for Ryadel\_15:

(Start: 46 @5530 has 29 MA's), (62, 5596), (75, 5674), (81, 5698), (87, 5758), (95, 5800), (110, 5836), (121, 5896), (142, 6025), (150, 6073), (156, 6112), (172, 6160),

Gene: SamScheppers\_62 Start: 41390, Stop: 42253, Start Num: 31

Candidate Starts for SamScheppers\_62:

(23, 41354), (25, 41369), (Start: 31 @41390 has 142 MA's), (45, 41423), (50, 41444), (69, 41519), (112, 41798), (114, 41804), (123, 41867), (132, 41921), (142, 41990), (150, 42038), (165, 42107), (185, 42215), (186, 42218),

Gene: SamuelLPlaqson\_62 Start: 42174, Stop: 43055, Start Num: 31

Candidate Starts for SamuelLPlaqson\_62:

(Start: 31 @42174 has 142 MA's), (62, 42285), (79, 42384), (114, 42609), (121, 42663), (135, 42738), (142, 42795), (150, 42843), (164, 42909), (176, 42957), (178, 42969), (179, 42984),

Gene: Santhid\_38 Start: 26389, Stop: 27150, Start Num: 36

Candidate Starts for Santhid\_38:

(21, 26332), (32, 26380), (Start: 36 @26389 has 4 MA's), (81, 26566), (88, 26638), (89, 26641), (124, 26797), (126, 26803), (135, 26839), (146, 26905), (165, 27013), (179, 27085),

Gene: Scarlett\_65 Start: 42108, Stop: 43028, Start Num: 31

Candidate Starts for Scarlett\_65:

(Start: 31 @42108 has 142 MA's), (62, 42219), (81, 42321), (101, 42468), (112, 42534), (114, 42540), (121, 42594), (131, 42663), (148, 42777), (149, 42780), (150, 42795), (153, 42822), (165, 42864), (176, 42909), (179, 42936), (182, 42954),

Gene: SchoolBus\_12 Start: 4748, Stop: 5497, Start Num: 46

Candidate Starts for SchoolBus\_12:

(Start: 46 @4748 has 29 MA's), (62, 4814), (75, 4892), (81, 4916), (87, 4976), (95, 5018), (110, 5054), (121, 5114), (142, 5243), (150, 5291), (156, 5330), (172, 5378),

Gene: Schuy\_14 Start: 5097, Stop: 5846, Start Num: 46

Candidate Starts for Schuy\_14:

(Start: 46 @5097 has 29 MA's), (62, 5163), (75, 5241), (81, 5265), (87, 5325), (95, 5367), (110, 5403), (121, 5463), (142, 5592), (150, 5640), (156, 5679), (172, 5727),

Gene: Scotia\_39 Start: 28728, Stop: 29555, Start Num: 34

Candidate Starts for Scotia\_39:

(Start: 34 @28728 has 9 MA's), (63, 28839), (66, 28851), (67, 28854), (72, 28899), (111, 29079), (144, 29286), (157, 29373), (158, 29382), (172, 29418), (183, 29496),

Gene: SgtBeansprout\_50 Start: 38595, Stop: 39482, Start Num: 31

Candidate Starts for SgtBeansprout\_50:

(Start: 31 @38595 has 142 MA's), (62, 38706), (79, 38805), (101, 38955), (106, 38988), (114, 39027), (121, 39081), (135, 39165), (141, 39213), (142, 39222), (147, 39237), (150, 39270), (176, 39384), (179, 39411),

Gene: Shagrat\_70 Start: 42104, Stop: 42943, Start Num: 46

Candidate Starts for Shagrat\_70:

(25, 42035), (Start: 46 @42104 has 29 MA's), (53, 42131), (79, 42269), (89, 42344), (109, 42386), (112, 42410), (113, 42413), (133, 42539), (140, 42593), (151, 42662), (165, 42725), (195, 42920),

Gene: Shambre1\_40 Start: 26325, Stop: 27116, Start Num: 41

Candidate Starts for Shambre1\_40:

(Start: 41 @26325 has 1 MA's), (51, 26355), (63, 26412), (65, 26415), (73, 26478), (87, 26568), (108, 26640), (141, 26844), (144, 26856),

Gene: Shaobing\_62 Start: 41547, Stop: 42434, Start Num: 31

Candidate Starts for Shaobing\_62:

(Start: 31 @41547 has 142 MA's), (62, 41658), (79, 41757), (81, 41760), (101, 41907), (112, 41973), (114, 41979), (121, 42033), (135, 42117), (142, 42174), (150, 42222), (177, 42339), (178, 42348), (179, 42363), (184, 42387), (187, 42402),

Gene: ShedlockHolmes\_61 Start: 41433, Stop: 42314, Start Num: 31

Candidate Starts for ShedlockHolmes\_61:

(Start: 31 @41433 has 142 MA's), (62, 41544), (72, 41607), (79, 41643), (82, 41652), (91, 41730), (97, 41766), (112, 41862), (135, 41997), (142, 42054), (150, 42102), (165, 42171), (176, 42216), (177, 42219), (179, 42243),

Gene: ShiaSurprise\_62 Start: 41608, Stop: 42486, Start Num: 31

Candidate Starts for ShiaSurprise\_62:

(Start: 31 @41608 has 142 MA's), (62, 41719), (79, 41818), (114, 42040), (121, 42094), (135, 42169), (142, 42226), (150, 42274), (164, 42340), (176, 42388), (178, 42400), (179, 42415),

Gene: Shida\_13 Start: 5002, Stop: 5751, Start Num: 46

Candidate Starts for Shida\_13:

(Start: 46 @5002 has 29 MA's), (62, 5068), (75, 5146), (81, 5170), (87, 5230), (95, 5272), (110, 5308), (121, 5368), (142, 5497), (150, 5545), (156, 5584), (172, 5632),

Gene: Slarp\_64 Start: 40918, Stop: 41781, Start Num: 31

Candidate Starts for Slarp\_64:

(23, 40882), (25, 40897), (Start: 31 @40918 has 142 MA's), (45, 40951), (50, 40972), (69, 41047), (112, 41326), (114, 41332), (123, 41395), (132, 41449), (142, 41518), (150, 41566), (165, 41635), (185, 41743), (186, 41746),

Gene: Slimphazie\_61 Start: 41275, Stop: 42162, Start Num: 31

Candidate Starts for Slimphazie\_61:

(Start: 31 @41275 has 142 MA's), (57, 41368), (62, 41386), (79, 41485), (101, 41635), (114, 41707), (121, 41761), (135, 41845), (142, 41902), (150, 41950), (164, 42016), (178, 42076), (179, 42091), (188, 42133),

Gene: Smooch\_14 Start: 5266, Stop: 6015, Start Num: 46

Candidate Starts for Smooch\_14:

(Start: 46 @5266 has 29 MA's), (62, 5332), (75, 5410), (81, 5434), (87, 5494), (95, 5536), (110, 5572), (121, 5632), (142, 5761), (150, 5809), (172, 5896),

Gene: SorJuana\_61 Start: 41469, Stop: 40828, Start Num: 56

Candidate Starts for SorJuana\_61:

(Start: 56 @41469 has 12 MA's), (72, 41382), (76, 41361), (82, 41349), (85, 41307), (90, 41280), (96, 41268), (99, 41253), (146, 41019), (155, 40944),

Gene: Spock\_61 Start: 41412, Stop: 42290, Start Num: 31

Candidate Starts for Spock\_61:

(Start: 31 @41412 has 142 MA's), (62, 41523), (79, 41622), (114, 41844), (121, 41898), (135, 41973), (142, 42030), (150, 42078), (164, 42144), (176, 42192), (178, 42204), (179, 42219),

Gene: Stinson\_62 Start: 41777, Stop: 42655, Start Num: 31

Candidate Starts for Stinson\_62:

(Start: 31 @41777 has 142 MA's), (Start: 56 @41867 has 12 MA's), (62, 41888), (79, 41987), (114, 42209), (121, 42263), (135, 42338), (142, 42395), (150, 42443), (164, 42509), (176, 42557), (178, 42569), (179, 42584),

Gene: Strobilo\_63 Start: 43357, Stop: 44214, Start Num: 31

Candidate Starts for Strobilo\_63:

(Start: 31 @43357 has 142 MA's), (62, 43462), (79, 43561), (114, 43771), (150, 44005), (165, 44074), (177, 44122), (178, 44131), (179, 44146),

Gene: Sulley\_61 Start: 41463, Stop: 42350, Start Num: 31

Candidate Starts for Sulley\_61:

(Start: 31 @41463 has 142 MA's), (62, 41574), (79, 41673), (114, 41895), (121, 41949), (135, 42033), (142, 42090), (150, 42138), (164, 42204), (177, 42255), (178, 42264), (179, 42279),

Gene: TBond007\_58 Start: 40913, Stop: 41794, Start Num: 31

Candidate Starts for TBond007\_58:

(Start: 31 @40913 has 142 MA's), (62, 41024), (72, 41087), (79, 41123), (82, 41132), (91, 41210), (112, 41342), (135, 41477), (142, 41534), (150, 41582), (165, 41651), (176, 41696), (177, 41699), (179, 41723),

Gene: TM4\_59 Start: 37712, Stop: 38569, Start Num: 31

Candidate Starts for TM4\_59:

(4, 37370), (Start: 31 @37712 has 142 MA's), (62, 37817), (79, 37916), (114, 38126), (150, 38360), (165, 38429), (177, 38477), (179, 38501),

Gene: TPA4\_47 Start: 36087, Stop: 36890, Start Num: 43

Candidate Starts for TPA4\_47:

(43, 36087), (77, 36249), (89, 36333), (94, 36360), (125, 36516), (127, 36525), (141, 36606), (142, 36615), (164, 36729), (174, 36768), (193, 36873),

Gene: Tachez\_61 Start: 41256, Stop: 42134, Start Num: 31

Candidate Starts for Tachez\_61:

(Start: 31 @41256 has 142 MA's), (62, 41367), (79, 41466), (114, 41688), (121, 41742), (135, 41817), (142, 41874), (150, 41922), (164, 41988), (176, 42036), (178, 42048), (179, 42063),

Gene: TaiwanKao\_63 Start: 41545, Stop: 42423, Start Num: 31

Candidate Starts for TaiwanKao\_63:

(Start: 31 @41545 has 142 MA's), (62, 41656), (79, 41755), (114, 41977), (121, 42031), (135, 42106), (142, 42163), (150, 42211), (164, 42277), (165, 42280), (176, 42325), (178, 42337), (179, 42352),

Gene: Taquito\_63 Start: 41153, Stop: 42016, Start Num: 31

Candidate Starts for Taquito\_63:

(23, 41117), (25, 41132), (Start: 31 @41153 has 142 MA's), (45, 41186), (50, 41207), (69, 41282), (112, 41561), (114, 41567), (123, 41630), (132, 41684), (142, 41753), (150, 41801), (165, 41870), (185, 41978), (186, 41981),

Gene: Tarzan\_39 Start: 27538, Stop: 28299, Start Num: 36

Candidate Starts for Tarzan\_39:

(9, 27307), (17, 27388), (22, 27487), (Start: 36 @27538 has 4 MA's), (58, 27604), (81, 27715), (89, 27790), (91, 27802), (124, 27946), (139, 28021), (142, 28045), (146, 28054), (158, 28144), (165, 28162), (179, 28234),

Gene: Teejan\_52 Start: 41208, Stop: 42095, Start Num: 31

Candidate Starts for Teejan\_52:

(Start: 31 @41208 has 142 MA's), (62, 41319), (79, 41418), (101, 41568), (106, 41601), (114, 41640), (121, 41694), (135, 41778), (141, 41826), (142, 41835), (147, 41850), (150, 41883), (176, 41997), (179, 42024),



Gene: TelAviv\_12 Start: 4745, Stop: 5494, Start Num: 46

Candidate Starts for TelAviv\_12:

(Start: 46 @4745 has 29 MA's), (62, 4811), (75, 4889), (81, 4913), (87, 4973), (95, 5015), (110, 5051), (121, 5111), (142, 5240), (150, 5288), (156, 5327), (172, 5375),

Gene: Thunderclap\_61 Start: 41891, Stop: 41250, Start Num: 56

Candidate Starts for Thunderclap\_61:

(Start: 56 @41891 has 12 MA's), (72, 41804), (76, 41783), (82, 41771), (85, 41729), (90, 41702), (96, 41690), (99, 41675), (136, 41501), (146, 41441), (155, 41366),

Gene: TingHuaYa\_63 Start: 40622, Stop: 41509, Start Num: 31

Candidate Starts for TingHuaYa\_63:

(Start: 31 @40622 has 142 MA's), (62, 40733), (79, 40832), (101, 40982), (114, 41054), (121, 41108), (135, 41192), (142, 41249), (150, 41297), (164, 41363), (177, 41414), (178, 41423), (179, 41438),

Gene: TiniBug\_62 Start: 42170, Stop: 43051, Start Num: 31

Candidate Starts for TiniBug\_62:

(Start: 31 @42170 has 142 MA's), (62, 42281), (79, 42380), (114, 42605), (121, 42659), (135, 42734), (142, 42791), (150, 42839), (164, 42905), (176, 42953), (178, 42965), (179, 42980),

Gene: TinyDot\_44 Start: 29888, Stop: 30616, Start Num: 47

Candidate Starts for TinyDot\_44:

(3, 29531), (19, 29756), (Start: 47 @29888 has 1 MA's), (79, 30035), (115, 30194), (119, 30230), (124, 30269), (160, 30473),

Gene: Tiri\_62 Start: 41574, Stop: 42461, Start Num: 31

Candidate Starts for Tiri\_62:

(Start: 31 @41574 has 142 MA's), (62, 41685), (79, 41784), (101, 41934), (114, 42006), (121, 42060), (135, 42144), (142, 42201), (149, 42234), (150, 42249), (164, 42315), (178, 42375), (179, 42390),

Gene: Topper\_61 Start: 41411, Stop: 42289, Start Num: 31

Candidate Starts for Topper\_61:

(Start: 31 @41411 has 142 MA's), (62, 41522), (79, 41621), (114, 41843), (121, 41897), (135, 41972), (142, 42029), (150, 42077), (164, 42143), (176, 42191), (178, 42203), (179, 42218),

Gene: Torres\_52 Start: 41209, Stop: 42096, Start Num: 31

Candidate Starts for Torres\_52:

(Start: 31 @41209 has 142 MA's), (62, 41320), (79, 41419), (101, 41569), (106, 41602), (114, 41641), (121, 41695), (135, 41779), (141, 41827), (142, 41836), (147, 41851), (150, 41884), (176, 41998), (179, 42025),

Gene: TreyKay\_62 Start: 41483, Stop: 42361, Start Num: 31

Candidate Starts for TreyKay\_62:

(Start: 31 @41483 has 142 MA's), (62, 41594), (79, 41693), (114, 41915), (121, 41969), (135, 42044), (142, 42101), (150, 42149), (164, 42215), (176, 42263), (178, 42275), (179, 42290),

Gene: TribbleTrouble\_60 Start: 41741, Stop: 42643, Start Num: 31

Candidate Starts for TribbleTrouble\_60:

(24, 41720), (Start: 31 @41741 has 142 MA's), (62, 41852), (79, 41951), (82, 41960), (91, 42038), (101, 42101), (112, 42191), (135, 42326), (142, 42383), (150, 42431), (165, 42500), (167, 42503), (177, 42548), (179, 42572),

Gene: TruffulaTree\_61 Start: 41271, Stop: 42158, Start Num: 31

Candidate Starts for TruffulaTree\_61:

(Start: 31 @41271 has 142 MA's), (57, 41364), (62, 41382), (79, 41481), (101, 41631), (114, 41703), (121, 41757), (135, 41841), (142, 41898), (150, 41946), (164, 42012), (178, 42072), (179, 42087), (188, 42129),

Gene: Twitch\_61 Start: 41413, Stop: 42291, Start Num: 31

Candidate Starts for Twitch\_61:

(Start: 31 @41413 has 142 MA's), (62, 41524), (79, 41623), (114, 41845), (121, 41899), (135, 41974), (142, 42031), (150, 42079), (164, 42145), (176, 42193), (178, 42205), (179, 42220),

Gene: Urkel\_62 Start: 42174, Stop: 43055, Start Num: 31

Candidate Starts for Urkel\_62:

(Start: 31 @42174 has 142 MA's), (62, 42285), (79, 42384), (114, 42609), (121, 42663), (135, 42738), (142, 42795), (150, 42843), (164, 42909), (176, 42957), (178, 42969), (179, 42984),

Gene: Vagabond\_13 Start: 5002, Stop: 5751, Start Num: 46

Candidate Starts for Vagabond\_13:

(Start: 46 @5002 has 29 MA's), (62, 5068), (75, 5146), (81, 5170), (87, 5230), (95, 5272), (110, 5308), (121, 5368), (142, 5497), (150, 5545), (156, 5584), (172, 5632),

Gene: Validus\_64 Start: 41893, Stop: 42780, Start Num: 31

Candidate Starts for Validus\_64:

(Start: 31 @41893 has 142 MA's), (62, 42004), (81, 42106), (101, 42253), (102, 42265), (114, 42325), (121, 42379), (135, 42463), (142, 42520), (150, 42568), (163, 42631), (177, 42685), (178, 42694), (179, 42709), (184, 42733), (187, 42748),

Gene: Veliki\_62 Start: 41251, Stop: 42129, Start Num: 31

Candidate Starts for Veliki\_62:

(Start: 31 @41251 has 142 MA's), (62, 41362), (79, 41461), (101, 41611), (114, 41683), (121, 41737), (135, 41812), (142, 41869), (150, 41917), (164, 41983), (176, 42031), (178, 42043), (179, 42058),

Gene: Vorrps\_13 Start: 4936, Stop: 5685, Start Num: 46

Candidate Starts for Vorrps\_13:

(Start: 46 @4936 has 29 MA's), (62, 5002), (75, 5080), (81, 5104), (87, 5164), (95, 5206), (110, 5242), (121, 5302), (142, 5431), (150, 5479), (156, 5518), (172, 5566),

Gene: WheatThin\_47 Start: 33927, Stop: 34814, Start Num: 20

Candidate Starts for WheatThin\_47:

(10, 33774), (11, 33783), (14, 33822), (Start: 20 @33927 has 15 MA's), (23, 33948), (48, 34038), (53, 34065), (57, 34083), (125, 34437), (127, 34446), (129, 34452), (144, 34539), (145, 34542), (150, 34584), (153, 34611), (159, 34638), (161, 34644), (165, 34653), (169, 34662),

Gene: Wildflower\_13 Start: 4962, Stop: 5711, Start Num: 46

Candidate Starts for Wildflower\_13:

(Start: 46 @4962 has 29 MA's), (62, 5028), (75, 5106), (81, 5130), (87, 5190), (95, 5232), (100, 5253), (110, 5268), (121, 5328), (142, 5457), (150, 5505), (156, 5544), (172, 5592),

Gene: Winget\_13 Start: 5001, Stop: 5750, Start Num: 46

Candidate Starts for Winget\_13:

(Start: 46 @5001 has 29 MA's), (62, 5067), (75, 5145), (81, 5169), (87, 5229), (95, 5271), (110, 5307), (121, 5367), (142, 5496), (150, 5544), (156, 5583),

Gene: Wintermute\_64 Start: 41148, Stop: 42011, Start Num: 31

Candidate Starts for Wintermute\_64:

(23, 41112), (25, 41127), (Start: 31 @41148 has 142 MA's), (45, 41181), (50, 41202), (69, 41277), (112, 41556), (114, 41562), (123, 41625), (132, 41679), (142, 41748), (150, 41796), (165, 41865), (185, 41973), (186, 41976),

Gene: Wogge42\_13 Start: 5091, Stop: 5840, Start Num: 46

Candidate Starts for Wogge42\_13:

(Start: 46 @5091 has 29 MA's), (62, 5157), (75, 5235), (81, 5259), (87, 5319), (95, 5361), (110, 5397), (121, 5457), (142, 5586), (150, 5634), (156, 5673), (172, 5721),

Gene: Y10\_62 Start: 41076, Stop: 41939, Start Num: 31

Candidate Starts for Y10\_62:

(23, 41040), (25, 41055), (Start: 31 @41076 has 142 MA's), (45, 41109), (50, 41130), (Start: 55 @41145 has 1 MA's), (69, 41205), (112, 41484), (114, 41490), (132, 41607), (142, 41676), (150, 41724), (165, 41793), (185, 41901), (186, 41904),

Gene: Y2\_62 Start: 41076, Stop: 41939, Start Num: 31

Candidate Starts for Y2\_62:

(23, 41040), (25, 41055), (Start: 31 @41076 has 142 MA's), (45, 41109), (50, 41130), (Start: 55 @41145 has 1 MA's), (69, 41205), (112, 41484), (114, 41490), (132, 41607), (142, 41676), (150, 41724), (165, 41793), (185, 41901), (186, 41904),

Gene: Yappy\_87 Start: 45148, Stop: 44513, Start Num: 55

Candidate Starts for Yappy\_87:

(Start: 55 @45148 has 1 MA's), (82, 45022), (83, 45004), (118, 44860), (122, 44839), (130, 44785), (138, 44740), (142, 44710), (153, 44632), (161, 44599), (166, 44587), (168, 44584), (180, 44530), (181, 44521),

Gene: Yeezus\_61 Start: 41861, Stop: 41220, Start Num: 56

Candidate Starts for Yeezus\_61:

(Start: 56 @41861 has 12 MA's), (72, 41774), (76, 41753), (82, 41741), (85, 41699), (90, 41672), (96, 41660), (99, 41645), (146, 41411), (155, 41336),

Gene: YoureAdopted\_60 Start: 41400, Stop: 42278, Start Num: 31

Candidate Starts for YoureAdopted\_60:

(Start: 31 @41400 has 142 MA's), (62, 41511), (79, 41610), (101, 41760), (114, 41832), (121, 41886), (135, 41961), (142, 42018), (150, 42066), (164, 42132), (176, 42180), (178, 42192), (179, 42207),

Gene: Yuna\_65 Start: 42443, Stop: 43345, Start Num: 31

Candidate Starts for Yuna\_65:

(6, 42131), (Start: 31 @42443 has 142 MA's), (62, 42554), (75, 42632), (76, 42641), (81, 42656), (101, 42803), (112, 42872), (114, 42878), (130, 42998), (135, 43028), (149, 43118), (153, 43160), (179, 43274),

Gene: YungJamal\_14 Start: 5302, Stop: 6051, Start Num: 46

Candidate Starts for YungJamal\_14:

(Start: 46 @5302 has 29 MA's), (62, 5368), (75, 5446), (81, 5470), (87, 5530), (95, 5572), (110, 5608), (121, 5668), (142, 5797), (150, 5845), (156, 5884), (172, 5932),

Gene: Yunkel11\_64 Start: 41120, Stop: 42025, Start Num: 31

Candidate Starts for Yunkel11\_64:

(Start: 31 @41120 has 142 MA's), (62, 41231), (79, 41330), (114, 41570), (121, 41624), (135, 41708), (150, 41813), (164, 41879), (177, 41930), (178, 41939), (179, 41954),

Gene: Zakhe101\_14 Start: 5314, Stop: 6063, Start Num: 46

Candidate Starts for Zakhe101\_14:

(Start: 46 @5314 has 29 MA's), (62, 5380), (75, 5458), (81, 5482), (87, 5542), (95, 5584), (100, 5605), (110, 5620), (121, 5680), (142, 5809), (150, 5857), (156, 5896), (172, 5944),

Gene: Zavala\_63 Start: 41556, Stop: 42434, Start Num: 31

Candidate Starts for Zavala\_63:

(Start: 31 @41556 has 142 MA's), (62, 41667), (69, 41703), (79, 41766), (101, 41916), (114, 41988), (121, 42042), (135, 42117), (142, 42174), (150, 42222), (164, 42288), (176, 42336), (178, 42348), (179, 42363),

Gene: Zebo\_12 Start: 4748, Stop: 5497, Start Num: 46

Candidate Starts for Zebo\_12:

(Start: 46 @4748 has 29 MA's), (62, 4814), (75, 4892), (81, 4916), (87, 4976), (95, 5018), (110, 5054), (121, 5114), (142, 5243), (150, 5291), (156, 5330), (172, 5378),

Gene: ZoeJ\_61 Start: 42753, Stop: 43610, Start Num: 31

Candidate Starts for ZoeJ\_61:

(Start: 31 @42753 has 142 MA's), (62, 42858), (79, 42957), (114, 43167), (150, 43401), (165, 43470), (177, 43518),