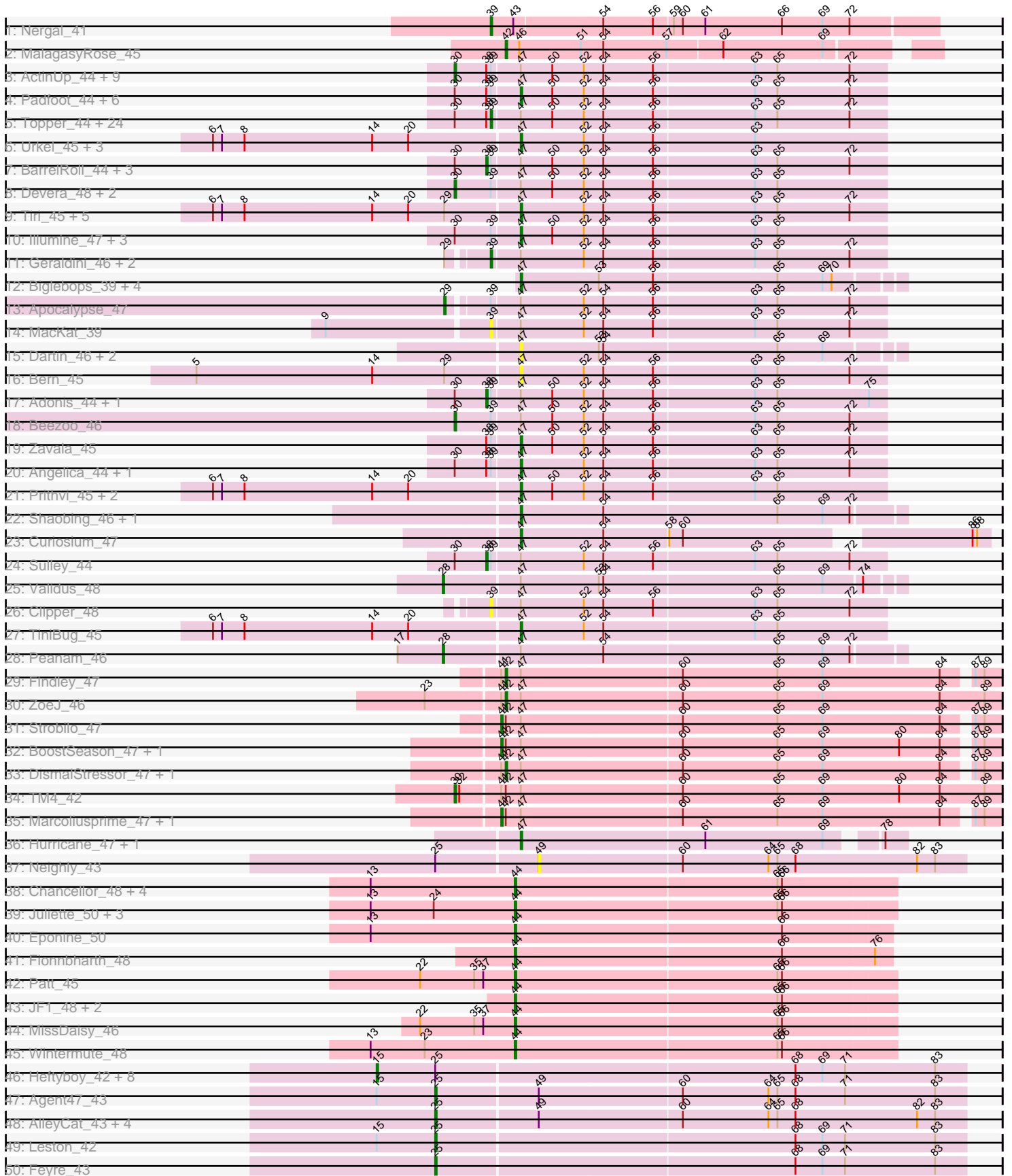
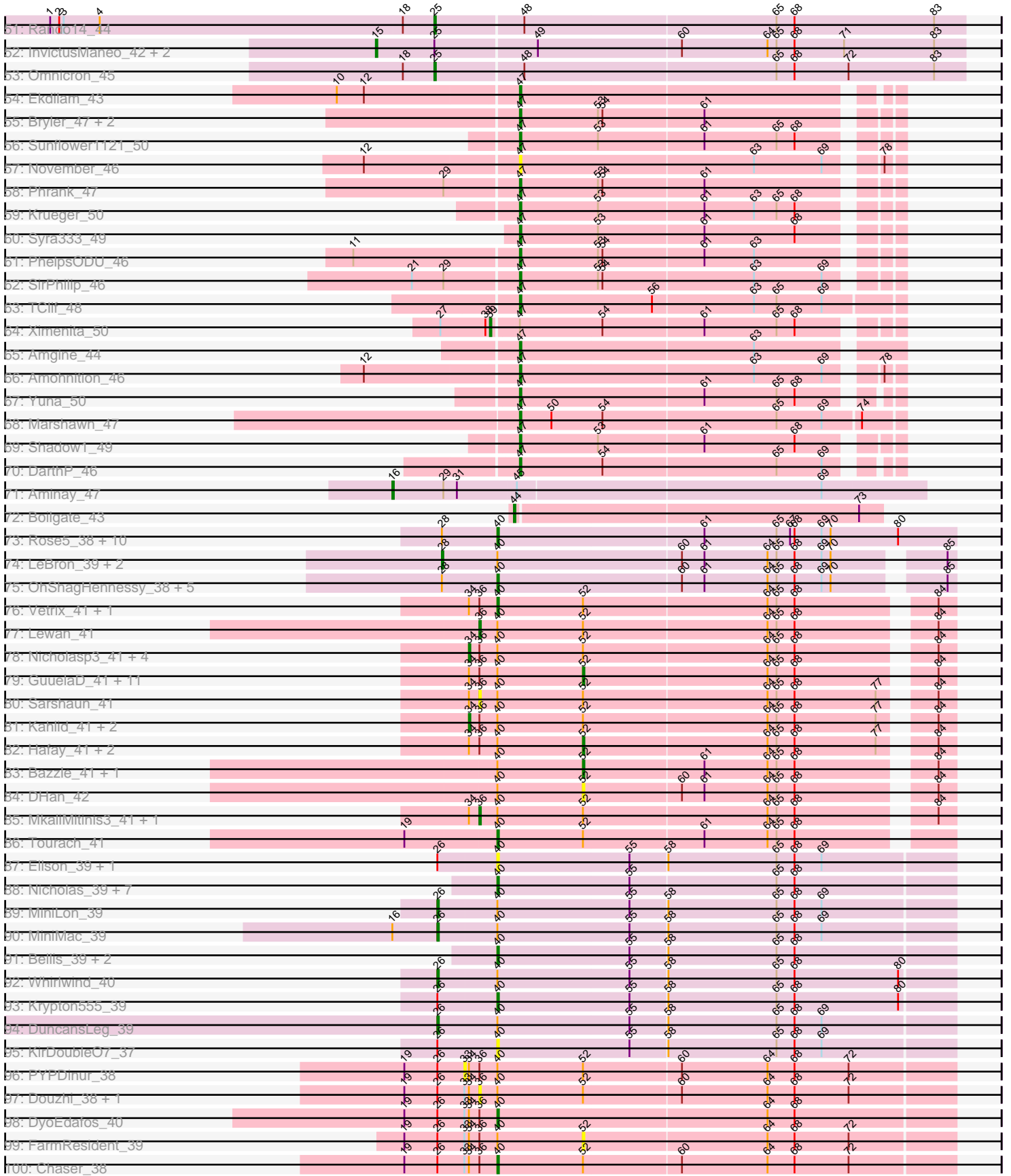


Pham 202641



# Pham 202641



Pham 202641



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 202641 Report

This analysis was run 01/18/25 on database version 583.

Pham number 202641 has 256 members, 27 are drafts.

Phages represented in each track:

- Track 1 : Nergal\_41
- Track 2 : MalagasyRose\_45
- Track 3 : ActinUp\_44, Ramen\_44, CaseJules\_45, Joy99\_44, Blizzard\_44, Atiba\_44, Zabiza\_39, Hyperbowlee\_44, Durfee\_44, Piatt\_44
- Track 4 : Padfoot\_44, BEEEST\_44, Jayhawk\_45, Asayake\_44, Mynx\_45, Padpat\_45, ShiaSurprise\_45
- Track 5 : Topper\_44, Dalmuri\_44, Jeckyll\_44, Llorens\_44, Rosmarinus\_44, CREW\_44, Boiiii\_44, BGIlluviae\_44, Belladonna\_44, Veliki\_44, Jarvi\_44, Rapunzel97\_44, Homura\_44, Spock\_44, Lunahalos\_44, Capricorn\_44, HedwigODU\_44, TruffulaTree\_44, Inky\_44, YoureAdopted\_43, Emerson\_45, CallaLilly\_46, Twitch\_44, Peel\_44, Slimphazie\_44
- Track 6 : Urkel\_45, Bella96\_45, SamuelLPlaqson\_45, DrHayes\_45
- Track 7 : BarrelRoll\_44, Adephagia\_44, Tachez\_44, JAWS\_44
- Track 8 : Devera\_48, Ageofdapage\_46, Murucutumbu\_45
- Track 9 : Tiri\_45, Megsy\_45, CrimD\_44, MeaningOfLife\_45, Ganymede\_45, QuincyRose\_43
- Track 10 : Illumine\_47, LaterM\_45, Stinson\_45, Dole\_47
- Track 11 : Geraldini\_46, BaghaKamala\_43, Pokerus\_43
- Track 12 : Binglebops\_39, Amelie\_39, Mdavu\_40, Nutello\_39, LilPharaoh\_39
- Track 13 : Apocalypse\_47
- Track 14 : MacKat\_39
- Track 15 : Dartin\_46, McMater\_46, Richo\_46
- Track 16 : Bern\_45
- Track 17 : Adonis\_44, Anaya\_46
- Track 18 : Beezoo\_46
- Track 19 : Zavala\_45
- Track 20 : Angelica\_44, Deby\_44
- Track 21 : Prithvi\_45, TreyKay\_45, LindNT\_44
- Track 22 : Shaobing\_46, Niklas\_46
- Track 23 : Curiosium\_47
- Track 24 : Sulley\_44
- Track 25 : Validus\_48
- Track 26 : Clipper\_48
- Track 27 : TiniBug\_45
- Track 28 : Peanam\_46
- Track 29 : Findley\_47
- Track 30 : ZoeJ\_46

- Track 31 : Strobilo\_47
- Track 32 : BoostSeason\_47, Mufasa\_47
- Track 33 : DismalStressor\_47, Milly\_47
- Track 34 : TM4\_42
- Track 35 : Marcoliusprime\_47, DismalFunk\_47
- Track 36 : Hurricane\_47, Keshu\_48
- Track 37 : Neighly\_43
- Track 38 : Chancellor\_48, Slarp\_48, Cheetobro\_48, Taquito\_48, Mitti\_48
- Track 39 : Juliette\_50, Reptar3000\_46, OmniCritical\_47, Malthus\_49
- Track 40 : Eponine\_50
- Track 41 : Fionnbharth\_48
- Track 42 : Patt\_45
- Track 43 : JF1\_48, Y10\_47, Y2\_47
- Track 44 : MissDaisy\_46
- Track 45 : Wintermute\_48
- Track 46 : Heftyboy\_42, Guillsminger\_43, Gengar\_42, Waterfoul\_43, Paola\_42, Thyatira\_44, OkiRoe\_42, Miryou\_44, SoSeph\_42
- Track 47 : Agent47\_43
- Track 48 : AlleyCat\_43, Edugator\_42, Psycho\_43, Dadosky\_43, Larva\_43
- Track 49 : Leston\_42
- Track 50 : Feyre\_43
- Track 51 : Rando14\_44
- Track 52 : InvictusManeo\_42, Collard\_42, Kratio\_41
- Track 53 : Omnicron\_45
- Track 54 : Ekdilam\_43
- Track 55 : Bryler\_47, Tierra\_47, Cain\_47
- Track 56 : Sunflower1121\_50
- Track 57 : November\_46
- Track 58 : Phrank\_47
- Track 59 : Krueger\_50
- Track 60 : Syra333\_49
- Track 61 : PhelpsODU\_46
- Track 62 : SirPhilip\_46
- Track 63 : TClif\_48
- Track 64 : Ximenita\_50
- Track 65 : Amgine\_44
- Track 66 : Amohnition\_46
- Track 67 : Yuna\_50
- Track 68 : Marshawn\_47
- Track 69 : Shadow1\_49
- Track 70 : DARTH\_P\_46
- Track 71 : Aminay\_47
- Track 72 : Boilgate\_43
- Track 73 : Rose5\_38, Calm\_39, Halena\_38, CicholasNage\_39, Wyatt2\_39, MAckerman\_39, Zaria\_39, Tyson\_38, Acquire49\_39, Silverleaf\_38, AvadaKedavra\_39
- Track 74 : LeBron\_39, JoeDirt\_38, UPIE\_39
- Track 75 : OhShagHennessy\_38, Wamburgxpress\_39, Enceladus\_38, Appletree2\_38, Poochiewood\_38, DirkDirk\_38
- Track 76 : Vetrix\_41, DrSeegs\_41
- Track 77 : Lewan\_41
- Track 78 : Nicholasp3\_41, Faith1\_41, Breezona\_41, Winky\_41, Rumpelstiltskin\_41

- Track 79 : GuuelaD\_41, Crossroads\_41, Gabriela\_41, Gardann\_41, Itos\_40, BobsGarage\_41, Netyap\_41, Underpass\_41, Zakai\_41, Finemlucis\_41, BigCheese\_41, Miley16\_41
- Track 80 : Sarshaun\_41
- Track 81 : Kahlid\_41, Loadrie\_41, Wigglewiggle\_41
- Track 82 : Hafay\_41, Soap141\_41, Wilder\_41
- Track 83 : Bazzle\_41, Archie\_41
- Track 84 : DHan\_42
- Track 85 : MkaliMitinis3\_41, LilDestine\_41
- Track 86 : Tourach\_41
- Track 87 : Ellson\_39, BourbonZero\_38
- Track 88 : Nicholas\_39, Lumos\_39, Jubie\_39, Snenia\_39, MsGreen\_39, Kingsolomon\_39, TriFive\_39, Clautastrophe\_39
- Track 89 : MiniLon\_39
- Track 90 : MiniMac\_39
- Track 91 : Bellis\_39, Finnry\_39, Moostard\_39
- Track 92 : Whirlwind\_40
- Track 93 : Krypton555\_39
- Track 94 : DuncansLeg\_39
- Track 95 : KirDoubleO7\_37
- Track 96 : PYPDinur\_38
- Track 97 : Douzhi\_38, BrainDrainer\_39
- Track 98 : DyoEdafos\_40
- Track 99 : FarmResident\_39
- Track 100 : Chaser\_38
- Track 101 : Kropertea\_38
- Track 102 : Bromden\_40
- Track 103 : Quby\_39
- Track 104 : Sheng711\_39
- Track 105 : Douge\_38
- Track 106 : Aegeus\_44, Baudelaire\_44
- Track 107 : Nebkiss\_69, Gaia\_69

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

The start number called the most often in the published annotations is 47, it was called in 57 of the 229 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Amelie\_39, Amgine\_44, Amohnition\_46, Angelica\_44, Asayake\_44, BEEST\_44, Bella96\_45, Bern\_45, Biglebops\_39, Bryler\_47, Cain\_47, CrimD\_44, Curiosium\_47, DarthP\_46, Dartin\_46, Deby\_44, Dole\_47, DrHayes\_45, Ekdilam\_43, Gaia\_69, Ganymede\_45, Hurricane\_47, Illumine\_47, Jayhawk\_45, Keshu\_48, Krueger\_50, LaterM\_45, LilPharaoh\_39, LindNT\_44, Marshawn\_47, McMater\_46, Mdavu\_40, MeaningOfLife\_45, Megsy\_45, Mynx\_45, Nebkiss\_69, Niklas\_46, November\_46, Nutello\_39, Padfoot\_44, Padpat\_45, PhelpsODU\_46, Phrank\_47, Prithvi\_45, QuincyRose\_43, Richo\_46, SamuelLPlaqson\_45, Shadow1\_49, Shaobing\_46, ShiaSurprise\_45, SirPhilip\_46, Stinson\_45, Sunflower1121\_50, Syra333\_49, TClif\_48, Tierra\_47, TiniBug\_45, Tiri\_45, TreyKay\_45, Urkel\_45, Yuna\_50, Zavala\_45,

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

- ActinUp\_44, Adephegia\_44, Adonis\_44, Ageofdapage\_46, Anaya\_46, Apocalypse\_47, Atiba\_44, BGIlluviae\_44, BaghaKamala\_43, BarrelRoll\_44, Beezoo\_46, Belladonna\_44, Blizzard\_44, Boiiji\_44, BoostSeason\_47, CREW\_44, CallaLilly\_46, Capricorn\_44, CaseJules\_45, Clipper\_48, Dalmuri\_44, Devera\_48, DismalFunk\_47, DismalStressor\_47, Durfee\_44, Emerson\_45, Findley\_47, Geraldini\_46, HedwigODU\_44, Homura\_44, Hyperbowlee\_44, Inky\_44, JAWS\_44, Jarvi\_44, Jeckyll\_44, Joy99\_44, Llorens\_44, Lunahalos\_44, MacKat\_39, Marcoliusprime\_47, Milly\_47, Mufasa\_47, Murucutumbu\_45, Peanam\_46, Peel\_44, Piatt\_44, Pokerus\_43, Ramen\_44, Rapunzel97\_44, Rosmarinus\_44, Slimphazie\_44, Spock\_44, Strobilo\_47, Sulley\_44, TM4\_42, Tachez\_44, Topper\_44, TruffulaTree\_44, Twitch\_44, Validus\_48, Veliki\_44, Ximenita\_50, YoureAdopted\_43, Zabiza\_39, ZoeJ\_46,

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

- Acquire49\_39, Aegeus\_44, Agent47\_43, AlleyCat\_43, Aminay\_47, Appletree2\_38, Archie\_41, AvadaKedavra\_39, Baudelaire\_44, Bazzle\_41, Bellis\_39, BigCheese\_41, BobsGarage\_41, Boilgate\_43, BourbonZero\_38, BrainDrainer\_39, Breezona\_41, Bromden\_40, Calm\_39, Chancellor\_48, Chaser\_38, Cheetobro\_48, CicholasNage\_39, Clautastrophe\_39, Collard\_42, Crossroads\_41, DHan\_42, Dadosky\_43, DirkDirk\_38, Douge\_38, Douzhi\_38, DrSeegs\_41, DuncansLeg\_39, DyoEdafos\_40, Edugator\_42, Ellson\_39, Enceladus\_38, Eponine\_50, Faith1\_41, FarmResident\_39, Feyre\_43, Finemlucis\_41, Finnry\_39, Fionnbharth\_48, Gabriela\_41, Gardann\_41, Gengar\_42, Guillsminger\_43, GuuelaD\_41, Hafay\_41, Halena\_38, Heftyboy\_42, InvictusManeo\_42, Itos\_40, JF1\_48, JoeDirt\_38, Jubie\_39, Juliette\_50, Kahlid\_41, Kingsolomon\_39, KirDoubleO7\_37, Kratio\_41, Kropertea\_38, Krypton555\_39, Larva\_43, LeBron\_39, Leston\_42, Lewan\_41, LilDestine\_41, Loadrie\_41, Lumos\_39, MAckerman\_39, MalagasyRose\_45, Malthus\_49, Miley16\_41, MiniLon\_39, MiniMac\_39, Miryou\_44, MissDaisy\_46, Mitti\_48, MkaliMitinis3\_41, Moostard\_39, MsGreen\_39, Neighly\_43, Nergal\_41, Netyap\_41, Nicholas\_39, Nicholasp3\_41, OhShagHennessey\_38, OkiRoe\_42, OmniCritical\_47, Omnicron\_45, PYPDinur\_38, Paola\_42, Patt\_45, Poochiewood\_38, Psycho\_43, Quby\_39, Rando14\_44, Reptar3000\_46, Rose5\_38, Rumpelstiltskin\_41, Sarshaun\_41, Sheng711\_39, Silverleaf\_38, Slarp\_48, Snenia\_39, SoSeph\_42, Soap141\_41, Taquito\_48, Thyatira\_44, Tourach\_41, TriFive\_39, Tyson\_38, UPIE\_39, Underpass\_41, Vetrix\_41, Wamburggrxpress\_39, Waterfoul\_43, Whirlwind\_40, Wigglewiggles\_41, Wilder\_41, Winky\_41, Wintermute\_48, Wyatt2\_39, Y10\_47, Y2\_47, Zakai\_41, Zaria\_39,

### Summary by start number:

Start 15:

- Found in 14 of 256 ( 5.5% ) of genes in pham
- Manual Annotations of this start: 12 of 229
- Called 85.7% of time when present
- Phage (with cluster) where this start called: Collard\_42 (K5), Gengar\_42 (K5), Guillsminger\_43 (K5), Heftyboy\_42 (K5), InvictusManeo\_42 (K5), Kratio\_41 (K5), Miryou\_44 (K5), OkiRoe\_42 (K5), Paola\_42 (K5), SoSeph\_42 (K5), Thyatira\_44 (K5), Waterfoul\_43 (K5),

Start 16:

- Found in 2 of 256 ( 0.8% ) of genes in pham

- Manual Annotations of this start: 1 of 229
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Aminay\_47 (K7),

#### Start 19:

- Found in 11 of 256 ( 4.3% ) of genes in pham
- No Manual Annotations of this start.
- Called 18.2% of time when present
- Phage (with cluster) where this start called: Kropertea\_38 (L4), Sheng711\_39 (L4),

#### Start 25:

- Found in 23 of 256 ( 9.0% ) of genes in pham
- Manual Annotations of this start: 10 of 229
- Called 43.5% of time when present
- Phage (with cluster) where this start called: Agent47\_43 (K5), AlleyCat\_43 (K5), Dadosky\_43 (K5), Edugator\_42 (K5), Feyre\_43 (K5), Larva\_43 (K5), Leston\_42 (K5), Omnicron\_45 (K5), Psycho\_43 (K5), Rando14\_44 (K5),

#### Start 26:

- Found in 17 of 256 ( 6.6% ) of genes in pham
- Manual Annotations of this start: 4 of 229
- Called 23.5% of time when present
- Phage (with cluster) where this start called: DuncansLeg\_39 (L3), MiniLon\_39 (L3), MiniMac\_39 (L3), Whirlwind\_40 (L3),

#### Start 28:

- Found in 22 of 256 ( 8.6% ) of genes in pham
- Manual Annotations of this start: 5 of 229
- Called 22.7% of time when present
- Phage (with cluster) where this start called: JoeDirt\_38 (L1), LeBron\_39 (L1), Peanam\_46 (K1), UPIE\_39 (L1), Validus\_48 (K1),

#### Start 29:

- Found in 14 of 256 ( 5.5% ) of genes in pham
- Manual Annotations of this start: 1 of 229
- Called 7.1% of time when present
- Phage (with cluster) where this start called: Apocalypse\_47 (K1),

#### Start 30:

- Found in 60 of 256 ( 23.4% ) of genes in pham
- Manual Annotations of this start: 15 of 229
- Called 25.0% of time when present
- Phage (with cluster) where this start called: ActinUp\_44 (K1), Ageofdapage\_46 (K1), Atiba\_44 (K1), Beezoo\_46 (K1), Blizzard\_44 (K1), CaseJules\_45 (K1), Devera\_48 (K1), Durfee\_44 (K1), Hyperbowlee\_44 (K1), Joy99\_44 (K1), Murucutumbu\_45 (K1), Piatt\_44 (K1), Ramen\_44 (K1), TM4\_42 (K2), Zabiza\_39 (K1),

#### Start 33:

- Found in 10 of 256 ( 3.9% ) of genes in pham
- No Manual Annotations of this start.
- Called 10.0% of time when present
- Phage (with cluster) where this start called: PYPDinur\_38 (L4),



Start 34:

- Found in 39 of 256 ( 15.2% ) of genes in pham
- Manual Annotations of this start: 9 of 229
- Called 23.1% of time when present
- Phage (with cluster) where this start called: Breezona\_41 (L2), Bromden\_40 (L4), Faith1\_41 (L2), Kahlid\_41 (L2), Loadrie\_41 (L2), Nicholasp3\_41 (L2), Rumpelstiltskin\_41 (L2), Wigglewiggle\_41 (L2), Winky\_41 (L2),

Start 36:

- Found in 40 of 256 ( 15.6% ) of genes in pham
- Manual Annotations of this start: 4 of 229
- Called 17.5% of time when present
- Phage (with cluster) where this start called: BrainDrainer\_39 (L4), Douge\_38 (L4), Douzhi\_38 (L4), Lewan\_41 (L2), LilDestine\_41 (L2), MkaliMitinis3\_41 (L2), Sarshaun\_41 (L2),

Start 38:

- Found in 53 of 256 ( 20.7% ) of genes in pham
- Manual Annotations of this start: 7 of 229
- Called 13.2% of time when present
- Phage (with cluster) where this start called: Adephagia\_44 (K1), Adonis\_44 (K1), Anaya\_46 (K1), BarrelRoll\_44 (K1), JAWS\_44 (K1), Sulley\_44 (K1), Tachez\_44 (K1),

Start 39:

- Found in 68 of 256 ( 26.6% ) of genes in pham
- Manual Annotations of this start: 29 of 229
- Called 47.1% of time when present
- Phage (with cluster) where this start called: BGlluviae\_44 (K1), BaghaKamala\_43 (K1), Belladonna\_44 (K1), Boiii\_44 (K1), CREW\_44 (K1), CallaLilly\_46 (K1), Capricorn\_44 (K1), Clipper\_48 (K1), Dalmuri\_44 (K1), Emerson\_45 (K1), Geraldini\_46 (K1), HedwigODU\_44 (K1), Homura\_44 (K1), Inky\_44 (K1), Jarvi\_44 (K1), Jeckyll\_44 (K1), Llorens\_44 (K1), Lunahalos\_44 (K1), MacKat\_39 (K1), Nergal\_41 (AG), Peel\_44 (K1), Pokerus\_43 (K1), Rapunzel97\_44 (K1), Rosmarinus\_44 (K1), Slimphazie\_44 (K1), Spock\_44 (K1), Topper\_44 (K1), TruffulaTree\_44 (K1), Twitch\_44 (K1), Veliki\_44 (K1), Ximenita\_50 (K6), YoureAdopted\_43 (K1),

Start 40:

- Found in 83 of 256 ( 32.4% ) of genes in pham
- Manual Annotations of this start: 31 of 229
- Called 44.6% of time when present
- Phage (with cluster) where this start called: Acquire49\_39 (L1), Appletree2\_38 (L1), AvadaKedavra\_39 (L1), Bellis\_39 (L3), BourbonZero\_38 (L3), Calm\_39 (L1), Chaser\_38 (L4), CicholasNage\_39 (L1), Clautastrophe\_39 (L3), DirkDirk\_38 (L1), DrSeegs\_41 (L2), DyoEdafos\_40 (L4), Ellson\_39 (L3), Enceladus\_38 (L1), Finnry\_39 (L3), Halena\_38 (L1), Jubie\_39 (L3), Kingsolomon\_39 (L3), KirDoubleO7\_37 (L3), Krypton555\_39 (L3), Lumos\_39 (L3), MAckerman\_39 (L1), Moostard\_39 (L3), MsGreen\_39 (L3), Nicholas\_39 (L3), OhShagHennessy\_38 (L1), Poochiewood\_38 (L1), Rose5\_38 (L1), Silverleaf\_38 (L1), Snenia\_39 (L3), Tourach\_41 (L2), TriFive\_39 (L3), Tyson\_38 (L1), Vetrix\_41 (L2), Wamburggrxpress\_39 (L1), Wyatt2\_39 (L1), Zaria\_39 (L1),

Start 41:

- Found in 10 of 256 ( 3.9% ) of genes in pham
- Manual Annotations of this start: 5 of 229
- Called 50.0% of time when present
- Phage (with cluster) where this start called: BoostSeason\_47 (K2), DismalFunk\_47 (K2), Marcoliusprime\_47 (K2), Mufasa\_47 (K2), Strobilo\_47 (K2),

#### Start 42:

- Found in 11 of 256 ( 4.3% ) of genes in pham
- Manual Annotations of this start: 5 of 229
- Called 45.5% of time when present
- Phage (with cluster) where this start called: DismalStressor\_47 (K2), Findley\_47 (K2), MalagasyRose\_45 (AG), Milly\_47 (K2), ZoeJ\_46 (K2),

#### Start 44:

- Found in 18 of 256 ( 7.0% ) of genes in pham
- Manual Annotations of this start: 18 of 229
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Boilgate\_43 (K8), Chancellor\_48 (K4), Cheetobro\_48 (K4), Eponine\_50 (K4), Fionnbharth\_48 (K4), JF1\_48 (K4), Juliette\_50 (K4), Malthus\_49 (K4), MissDaisy\_46 (K4), Mitti\_48 (K4), OmniCritical\_47 (K4), Patt\_45 (K4), Reptar3000\_46 (K4), Slarp\_48 (K4), Taquito\_48 (K4), Wintermute\_48 (K4), Y10\_47 (K4), Y2\_47 (K4),

#### Start 47:

- Found in 127 of 256 ( 49.6% ) of genes in pham
- Manual Annotations of this start: 57 of 229
- Called 48.8% of time when present
- Phage (with cluster) where this start called: Amelie\_39 (K1), Amgine\_44 (K6), Amohntion\_46 (K6), Angelica\_44 (K1), Asayake\_44 (K1), BEEEST\_44 (K1), Bella96\_45 (K1), Bern\_45 (K1), Biglebops\_39 (K1), Bryler\_47 (K6), Cain\_47 (K6), CrimD\_44 (K1), Curiosium\_47 (K1), DarthP\_46 (K6), Dartin\_46 (K1), Deby\_44 (K1), Dole\_47 (K1), DrHayes\_45 (K1), Ekdilam\_43 (K6), Gaia\_69 (X), Ganymede\_45 (K1), Hurricane\_47 (K3), Illumine\_47 (K1), Jayhawk\_45 (K1), Keshu\_48 (K3), Krueger\_50 (K6), LaterM\_45 (K1), LilPharaoh\_39 (K1), LindNT\_44 (K1), Marshawn\_47 (K6), McMater\_46 (K1), Mdavu\_40 (K1), MeaningOfLife\_45 (K1), Megsy\_45 (K1), Mynx\_45 (K1), Nebkiss\_69 (X), Niklas\_46 (K1), November\_46 (K6), Nutello\_39 (K1), Padfoot\_44 (K1), Padpat\_45 (K1), PhelpsODU\_46 (K6), Phrank\_47 (K6), Prithvi\_45 (K1), QuincyRose\_43 (K1), Richo\_46 (K1), SamuelLPlaqson\_45 (K1), Shadow1\_49 (K6), Shaobing\_46 (K1), ShiaSurprise\_45 (K1), SirPhilip\_46 (K6), Stinson\_45 (K1), Sunflower1121\_50 (K6), Syra333\_49 (K6), TClif\_48 (K6), Tierra\_47 (K6), TiniBug\_45 (K1), Tiri\_45 (K1), TreyKay\_45 (K1), Urkel\_45 (K1), Yuna\_50 (K6), Zavala\_45 (K1),

#### Start 49:

- Found in 10 of 256 ( 3.9% ) of genes in pham
- No Manual Annotations of this start.
- Called 10.0% of time when present
- Phage (with cluster) where this start called: Neighly\_43 (K3),

#### Start 52:

- Found in 124 of 256 ( 48.4% ) of genes in pham
- Manual Annotations of this start: 16 of 229
- Called 17.7% of time when present

- Phage (with cluster) where this start called: Aegeus\_44 (L5), Archie\_41 (L2), Baudelaire\_44 (L5), Bazzle\_41 (L2), BigCheese\_41 (L2), BobsGarage\_41 (L2), Crossroads\_41 (L2), DHan\_42 (L2), FarmResident\_39 (L4), Finemlucis\_41 (L2), Gabriela\_41 (L2), Gardann\_41 (L2), GuuelaD\_41 (L2), Hafay\_41 (L2), Itos\_40 (L2), Miley16\_41 (L2), Netyap\_41 (L2), Quby\_39 (L4), Soap141\_41 (L2), Underpass\_41 (L2), Wilder\_41 (L2), Zakai\_41 (L2),

### **Summary by clusters:**

There are 15 clusters represented in this pham: AG, K4, L4, K3, K2, K1, L5, L2, K6, K5, L1, X, K8, K7, L3,

Info for manual annotations of cluster AG:

- Start number 39 was manually annotated 1 time for cluster AG.
- Start number 42 was manually annotated 1 time for cluster AG.

Info for manual annotations of cluster K1:

- Start number 28 was manually annotated 2 times for cluster K1.
- Start number 29 was manually annotated 1 time for cluster K1.
- Start number 30 was manually annotated 14 times for cluster K1.
- Start number 38 was manually annotated 7 times for cluster K1.
- Start number 39 was manually annotated 27 times for cluster K1.
- Start number 47 was manually annotated 36 times for cluster K1.

Info for manual annotations of cluster K2:

- Start number 30 was manually annotated 1 time for cluster K2.
- Start number 41 was manually annotated 5 times for cluster K2.
- Start number 42 was manually annotated 4 times for cluster K2.

Info for manual annotations of cluster K3:

- Start number 47 was manually annotated 2 times for cluster K3.

Info for manual annotations of cluster K4:

- Start number 44 was manually annotated 17 times for cluster K4.

Info for manual annotations of cluster K5:

- Start number 15 was manually annotated 12 times for cluster K5.
- Start number 25 was manually annotated 10 times for cluster K5.

Info for manual annotations of cluster K6:

- Start number 39 was manually annotated 1 time for cluster K6.
- Start number 47 was manually annotated 17 times for cluster K6.

Info for manual annotations of cluster K7:

- Start number 16 was manually annotated 1 time for cluster K7.

Info for manual annotations of cluster K8:

- Start number 44 was manually annotated 1 time for cluster K8.

Info for manual annotations of cluster L1:

- Start number 28 was manually annotated 3 times for cluster L1.
- Start number 40 was manually annotated 16 times for cluster L1.

Info for manual annotations of cluster L2:

- Start number 34 was manually annotated 8 times for cluster L2.
- Start number 36 was manually annotated 3 times for cluster L2.
- Start number 40 was manually annotated 3 times for cluster L2.
- Start number 52 was manually annotated 14 times for cluster L2.

Info for manual annotations of cluster L3:

- Start number 26 was manually annotated 4 times for cluster L3.
- Start number 40 was manually annotated 10 times for cluster L3.

Info for manual annotations of cluster L4:

- Start number 34 was manually annotated 1 time for cluster L4.
- Start number 36 was manually annotated 1 time for cluster L4.
- Start number 40 was manually annotated 2 times for cluster L4.

Info for manual annotations of cluster L5:

- Start number 52 was manually annotated 2 times for cluster L5.

Info for manual annotations of cluster X:

- Start number 47 was manually annotated 2 times for cluster X.

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

Gene: Acquire49\_39 Start: 33043, Stop: 33345, Start Num: 40

Candidate Starts for Acquire49\_39:

(Start: 28 @33007 has 5 MA's), (Start: 40 @33043 has 31 MA's), (61, 33178), (65, 33226), (67, 33235), (68, 33238), (69, 33256), (70, 33262), (80, 33307),

Gene: ActinUp\_44 Start: 35120, Stop: 35401, Start Num: 30

Candidate Starts for ActinUp\_44:

(Start: 30 @35120 has 15 MA's), (Start: 38 @35141 has 7 MA's), (Start: 39 @35144 has 29 MA's), (Start: 47 @35162 has 57 MA's), (50, 35183), (Start: 52 @35204 has 16 MA's), (54, 35216), (56, 35249), (63, 35315), (65, 35330), (72, 35378),

Gene: Adephagia\_44 Start: 35138, Stop: 35398, Start Num: 38

Candidate Starts for Adephagia\_44:

(Start: 30 @35117 has 15 MA's), (Start: 38 @35138 has 7 MA's), (Start: 39 @35141 has 29 MA's), (Start: 47 @35159 has 57 MA's), (50, 35180), (Start: 52 @35201 has 16 MA's), (54, 35213), (56, 35246), (63, 35312), (65, 35327), (72, 35375),

Gene: Adonis\_44 Start: 35436, Stop: 35696, Start Num: 38

Candidate Starts for Adonis\_44:

(Start: 30 @35415 has 15 MA's), (Start: 38 @35436 has 7 MA's), (Start: 39 @35439 has 29 MA's), (Start: 47 @35457 has 57 MA's), (50, 35478), (Start: 52 @35499 has 16 MA's), (54, 35511), (56, 35544), (63, 35610), (65, 35625), (75, 35685),

Gene: Aegeus\_44 Start: 36838, Stop: 37059, Start Num: 52

Candidate Starts for Aegeus\_44:

(46, 36796), (Start: 52 @36838 has 16 MA's), (54, 36850), (65, 36964), (66, 36967), (79, 37039),

Gene: Agent47\_43 Start: 34663, Stop: 35010, Start Num: 25

Candidate Starts for Agent47\_43:

(Start: 15 @34624 has 12 MA's), (Start: 25 @34663 has 10 MA's), (49, 34729), (60, 34822), (64, 34879), (65, 34885), (68, 34897), (71, 34930), (83, 34990),

Gene: Ageofdapage\_46 Start: 36088, Stop: 36369, Start Num: 30

Candidate Starts for Ageofdapage\_46:

(Start: 30 @36088 has 15 MA's), (Start: 39 @36112 has 29 MA's), (Start: 47 @36130 has 57 MA's), (50, 36151), (Start: 52 @36172 has 16 MA's), (54, 36184), (56, 36217), (63, 36283), (65, 36298),

Gene: AlleyCat\_43 Start: 34517, Stop: 34864, Start Num: 25

Candidate Starts for AlleyCat\_43:

(Start: 25 @34517 has 10 MA's), (49, 34583), (60, 34676), (64, 34733), (65, 34739), (68, 34751), (82, 34832), (83, 34844),

Gene: Amelie\_39 Start: 34739, Stop: 34984, Start Num: 47

Candidate Starts for Amelie\_39:

(Start: 47 @34739 has 57 MA's), (53, 34790), (56, 34826), (65, 34907), (69, 34937), (70, 34943),

Gene: Amgine\_44 Start: 36236, Stop: 36478, Start Num: 47

Candidate Starts for Amgine\_44:

(Start: 47 @36236 has 57 MA's), (63, 36389),

Gene: Aminay\_47 Start: 36566, Stop: 36913, Start Num: 16

Candidate Starts for Aminay\_47:

(Start: 16 @36566 has 1 MA's), (Start: 29 @36599 has 1 MA's), (31, 36608), (45, 36647), (69, 36845),

Gene: Amohnition\_46 Start: 36255, Stop: 36491, Start Num: 47

Candidate Starts for Amohnition\_46:

(12, 36156), (Start: 47 @36255 has 57 MA's), (63, 36408), (69, 36453), (78, 36480),

Gene: Anaya\_46 Start: 35748, Stop: 36008, Start Num: 38

Candidate Starts for Anaya\_46:

(Start: 30 @35727 has 15 MA's), (Start: 38 @35748 has 7 MA's), (Start: 39 @35751 has 29 MA's), (Start: 47 @35769 has 57 MA's), (50, 35790), (Start: 52 @35811 has 16 MA's), (54, 35823), (56, 35856), (63, 35922), (65, 35937), (75, 35997),

Gene: Angelica\_44 Start: 35389, Stop: 35628, Start Num: 47

Candidate Starts for Angelica\_44:

(Start: 30 @35347 has 15 MA's), (Start: 38 @35368 has 7 MA's), (Start: 39 @35371 has 29 MA's), (Start: 47 @35389 has 57 MA's), (Start: 52 @35431 has 16 MA's), (54, 35443), (56, 35476), (63, 35542), (65, 35557), (72, 35605),

Gene: Apocalypse\_47 Start: 36132, Stop: 36413, Start Num: 29

Candidate Starts for Apocalypse\_47:

(Start: 29 @36132 has 1 MA's), (Start: 39 @36156 has 29 MA's), (Start: 47 @36174 has 57 MA's), (Start: 52 @36216 has 16 MA's), (54, 36228), (56, 36261), (63, 36327), (65, 36342), (72, 36390),

Gene: Appletree2\_38 Start: 32985, Stop: 33272, Start Num: 40

Candidate Starts for Appletree2\_38:

(Start: 28 @32949 has 5 MA's), (Start: 40 @32985 has 31 MA's), (60, 33105), (61, 33120), (64, 33162), (65, 33168), (68, 33180), (69, 33198), (70, 33204), (85, 33267),

Gene: Archie\_41 Start: 34671, Stop: 34901, Start Num: 52

Candidate Starts for Archie\_41:

(Start: 40 @34614 has 31 MA's), (Start: 52 @34671 has 16 MA's), (61, 34749), (64, 34791), (65, 34797), (68, 34809), (84, 34890),

Gene: Asayake\_44 Start: 35474, Stop: 35713, Start Num: 47

Candidate Starts for Asayake\_44:

(Start: 30 @35432 has 15 MA's), (Start: 38 @35453 has 7 MA's), (Start: 39 @35456 has 29 MA's), (Start: 47 @35474 has 57 MA's), (50, 35495), (Start: 52 @35516 has 16 MA's), (54, 35528), (56, 35561), (63, 35627), (65, 35642), (72, 35690),

Gene: Atiba\_44 Start: 35080, Stop: 35361, Start Num: 30

Candidate Starts for Atiba\_44:

(Start: 30 @35080 has 15 MA's), (Start: 38 @35101 has 7 MA's), (Start: 39 @35104 has 29 MA's), (Start: 47 @35122 has 57 MA's), (50, 35143), (Start: 52 @35164 has 16 MA's), (54, 35176), (56, 35209), (63, 35275), (65, 35290), (72, 35338),

Gene: AvadaKedavra\_39 Start: 33052, Stop: 33354, Start Num: 40

Candidate Starts for AvadaKedavra\_39:

(Start: 28 @33016 has 5 MA's), (Start: 40 @33052 has 31 MA's), (61, 33187), (65, 33235), (67, 33244), (68, 33247), (69, 33265), (70, 33271), (80, 33316),

Gene: BEEST\_44 Start: 35474, Stop: 35713, Start Num: 47

Candidate Starts for BEEST\_44:

(Start: 30 @35432 has 15 MA's), (Start: 38 @35453 has 7 MA's), (Start: 39 @35456 has 29 MA's), (Start: 47 @35474 has 57 MA's), (50, 35495), (Start: 52 @35516 has 16 MA's), (54, 35528), (56, 35561), (63, 35627), (65, 35642), (72, 35690),

Gene: BGlluviae\_44 Start: 35259, Stop: 35516, Start Num: 39

Candidate Starts for BGlluviae\_44:

(Start: 30 @35235 has 15 MA's), (Start: 38 @35256 has 7 MA's), (Start: 39 @35259 has 29 MA's), (Start: 47 @35277 has 57 MA's), (50, 35298), (Start: 52 @35319 has 16 MA's), (54, 35331), (56, 35364), (63, 35430), (65, 35445), (72, 35493),

Gene: BaghaKamala\_43 Start: 34579, Stop: 34836, Start Num: 39

Candidate Starts for BaghaKamala\_43:

(Start: 29 @34555 has 1 MA's), (Start: 39 @34579 has 29 MA's), (Start: 47 @34597 has 57 MA's), (Start: 52 @34639 has 16 MA's), (54, 34651), (56, 34684), (63, 34750), (65, 34765), (72, 34813),

Gene: BarrelRoll\_44 Start: 35124, Stop: 35384, Start Num: 38

Candidate Starts for BarrelRoll\_44:

(Start: 30 @35103 has 15 MA's), (Start: 38 @35124 has 7 MA's), (Start: 39 @35127 has 29 MA's), (Start: 47 @35145 has 57 MA's), (50, 35166), (Start: 52 @35187 has 16 MA's), (54, 35199), (56, 35232), (63, 35298), (65, 35313), (72, 35361),

Gene: Baudelaire\_44 Start: 36838, Stop: 37059, Start Num: 52

Candidate Starts for Baudelaire\_44:

(46, 36796), (Start: 52 @36838 has 16 MA's), (54, 36850), (65, 36964), (66, 36967), (79, 37039),

Gene: Bazzle\_41 Start: 34703, Stop: 34933, Start Num: 52

Candidate Starts for Bazzle\_41:

(Start: 40 @34646 has 31 MA's), (Start: 52 @34703 has 16 MA's), (61, 34781), (64, 34823), (65, 34829), (68, 34841), (84, 34922),

Gene: Beezoo\_46 Start: 36078, Stop: 36359, Start Num: 30

Candidate Starts for Beezoo\_46:

(Start: 30 @36078 has 15 MA's), (Start: 39 @36102 has 29 MA's), (Start: 47 @36120 has 57 MA's), (50, 36141), (Start: 52 @36162 has 16 MA's), (54, 36174), (56, 36207), (63, 36273), (65, 36288), (72, 36336),

Gene: Bella96\_45 Start: 36011, Stop: 36250, Start Num: 47

Candidate Starts for Bella96\_45:

(6, 35810), (7, 35816), (8, 35831), (14, 35915), (20, 35939), (Start: 47 @36011 has 57 MA's), (Start: 52 @36053 has 16 MA's), (54, 36065), (56, 36098), (63, 36164),

Gene: Belladonna\_44 Start: 35259, Stop: 35516, Start Num: 39

Candidate Starts for Belladonna\_44:

(Start: 30 @35235 has 15 MA's), (Start: 38 @35256 has 7 MA's), (Start: 39 @35259 has 29 MA's), (Start: 47 @35277 has 57 MA's), (50, 35298), (Start: 52 @35319 has 16 MA's), (54, 35331), (56, 35364), (63, 35430), (65, 35445), (72, 35493),

Gene: Bellis\_39 Start: 34657, Stop: 34956, Start Num: 40

Candidate Starts for Bellis\_39:

(Start: 40 @34657 has 31 MA's), (55, 34744), (58, 34768), (65, 34840), (68, 34852),

Gene: Bern\_45 Start: 34192, Stop: 34431, Start Num: 47

Candidate Starts for Bern\_45:

(5, 33979), (14, 34096), (Start: 29 @34144 has 1 MA's), (Start: 47 @34192 has 57 MA's), (Start: 52 @34234 has 16 MA's), (54, 34246), (56, 34279), (63, 34345), (65, 34360), (72, 34408),

Gene: BigCheese\_41 Start: 34467, Stop: 34697, Start Num: 52

Candidate Starts for BigCheese\_41:

(Start: 34 @34392 has 9 MA's), (Start: 36 @34398 has 4 MA's), (Start: 40 @34410 has 31 MA's), (Start: 52 @34467 has 16 MA's), (64, 34587), (65, 34593), (68, 34605), (84, 34686),

Gene: Biglebops\_39 Start: 34739, Stop: 34984, Start Num: 47

Candidate Starts for Biglebops\_39:

(Start: 47 @34739 has 57 MA's), (53, 34790), (56, 34826), (65, 34907), (69, 34937), (70, 34943),

Gene: Blizzard\_44 Start: 35432, Stop: 35713, Start Num: 30

Candidate Starts for Blizzard\_44:

(Start: 30 @35432 has 15 MA's), (Start: 38 @35453 has 7 MA's), (Start: 39 @35456 has 29 MA's), (Start: 47 @35474 has 57 MA's), (50, 35495), (Start: 52 @35516 has 16 MA's), (54, 35528), (56, 35561), (63, 35627), (65, 35642), (72, 35690),

Gene: BobsGarage\_41 Start: 34467, Stop: 34697, Start Num: 52

Candidate Starts for BobsGarage\_41:

(Start: 34 @34392 has 9 MA's), (Start: 36 @34398 has 4 MA's), (Start: 40 @34410 has 31 MA's), (Start: 52 @34467 has 16 MA's), (64, 34587), (65, 34593), (68, 34605), (84, 34686),

Gene: Boiiii\_44 Start: 35458, Stop: 35715, Start Num: 39

Candidate Starts for Boiiii\_44:

(Start: 30 @35434 has 15 MA's), (Start: 38 @35455 has 7 MA's), (Start: 39 @35458 has 29 MA's), (Start: 47 @35476 has 57 MA's), (50, 35497), (Start: 52 @35518 has 16 MA's), (54, 35530), (56, 35563), (63, 35629), (65, 35644), (72, 35692),

Gene: Boilgate\_43 Start: 36328, Stop: 36564, Start Num: 44

Candidate Starts for Boilgate\_43:  
(Start: 44 @36328 has 18 MA's), (73, 36550),

Gene: BoostSeason\_47 Start: 36788, Stop: 37108, Start Num: 41  
Candidate Starts for BoostSeason\_47:  
(Start: 41 @36788 has 5 MA's), (Start: 42 @36791 has 5 MA's), (Start: 47 @36800 has 57 MA's), (60, 36905), (65, 36968), (69, 36998), (80, 37049), (84, 37076), (87, 37091), (89, 37097),

Gene: BourbonZero\_38 Start: 34636, Stop: 34935, Start Num: 40  
Candidate Starts for BourbonZero\_38:  
(Start: 26 @34597 has 4 MA's), (Start: 40 @34636 has 31 MA's), (55, 34723), (58, 34747), (65, 34819), (68, 34831), (69, 34849),

Gene: BrainDrainer\_39 Start: 33307, Stop: 33618, Start Num: 36  
Candidate Starts for BrainDrainer\_39:  
(19, 33259), (Start: 26 @33280 has 4 MA's), (33, 33298), (Start: 34 @33301 has 9 MA's), (Start: 36 @33307 has 4 MA's), (Start: 40 @33319 has 31 MA's), (Start: 52 @33376 has 16 MA's), (60, 33439), (64, 33496), (68, 33514), (72, 33550),

Gene: Breezona\_41 Start: 34392, Stop: 34697, Start Num: 34  
Candidate Starts for Breezona\_41:  
(Start: 34 @34392 has 9 MA's), (Start: 36 @34398 has 4 MA's), (Start: 40 @34410 has 31 MA's), (Start: 52 @34467 has 16 MA's), (64, 34587), (65, 34593), (68, 34605), (84, 34686),

Gene: Bromden\_40 Start: 33855, Stop: 34172, Start Num: 34  
Candidate Starts for Bromden\_40:  
(Start: 34 @33855 has 9 MA's), (Start: 36 @33861 has 4 MA's), (Start: 40 @33873 has 31 MA's), (64, 34050), (68, 34068), (81, 34140), (85, 34167),

Gene: Bryler\_47 Start: 35116, Stop: 35352, Start Num: 47  
Candidate Starts for Bryler\_47:  
(Start: 47 @35116 has 57 MA's), (53, 35167), (54, 35170), (61, 35236),

Gene: CREW\_44 Start: 35259, Stop: 35516, Start Num: 39  
Candidate Starts for CREW\_44:  
(Start: 30 @35235 has 15 MA's), (Start: 38 @35256 has 7 MA's), (Start: 39 @35259 has 29 MA's), (Start: 47 @35277 has 57 MA's), (50, 35298), (Start: 52 @35319 has 16 MA's), (54, 35331), (56, 35364), (63, 35430), (65, 35445), (72, 35493),

Gene: Cain\_47 Start: 35104, Stop: 35340, Start Num: 47  
Candidate Starts for Cain\_47:  
(Start: 47 @35104 has 57 MA's), (53, 35155), (54, 35158), (61, 35224),

Gene: CallaLilly\_46 Start: 35182, Stop: 35439, Start Num: 39  
Candidate Starts for CallaLilly\_46:  
(Start: 30 @35158 has 15 MA's), (Start: 38 @35179 has 7 MA's), (Start: 39 @35182 has 29 MA's), (Start: 47 @35200 has 57 MA's), (50, 35221), (Start: 52 @35242 has 16 MA's), (54, 35254), (56, 35287), (63, 35353), (65, 35368), (72, 35416),

Gene: Calm\_39 Start: 33058, Stop: 33360, Start Num: 40  
Candidate Starts for Calm\_39:  
(Start: 28 @33022 has 5 MA's), (Start: 40 @33058 has 31 MA's), (61, 33193), (65, 33241), (67, 33250), (68, 33253), (69, 33271), (70, 33277), (80, 33322),



Gene: Capricorn\_44 Start: 35259, Stop: 35516, Start Num: 39

Candidate Starts for Capricorn\_44:

(Start: 30 @35235 has 15 MA's), (Start: 38 @35256 has 7 MA's), (Start: 39 @35259 has 29 MA's),  
(Start: 47 @35277 has 57 MA's), (50, 35298), (Start: 52 @35319 has 16 MA's), (54, 35331), (56,  
35364), (63, 35430), (65, 35445), (72, 35493),

Gene: CaseJules\_45 Start: 35432, Stop: 35713, Start Num: 30

Candidate Starts for CaseJules\_45:

(Start: 30 @35432 has 15 MA's), (Start: 38 @35453 has 7 MA's), (Start: 39 @35456 has 29 MA's),  
(Start: 47 @35474 has 57 MA's), (50, 35495), (Start: 52 @35516 has 16 MA's), (54, 35528), (56,  
35561), (63, 35627), (65, 35642), (72, 35690),

Gene: Chancellor\_48 Start: 36169, Stop: 36417, Start Num: 44

Candidate Starts for Chancellor\_48:

(13, 36073), (Start: 44 @36169 has 18 MA's), (65, 36340), (66, 36343),

Gene: Chaser\_38 Start: 33136, Stop: 33435, Start Num: 40

Candidate Starts for Chaser\_38:

(19, 33076), (Start: 26 @33097 has 4 MA's), (33, 33115), (Start: 34 @33118 has 9 MA's), (Start: 36  
@33124 has 4 MA's), (Start: 40 @33136 has 31 MA's), (Start: 52 @33193 has 16 MA's), (60, 33256),  
(64, 33313), (68, 33331), (72, 33367),

Gene: Cheetobro\_48 Start: 36166, Stop: 36414, Start Num: 44

Candidate Starts for Cheetobro\_48:

(13, 36070), (Start: 44 @36166 has 18 MA's), (65, 36337), (66, 36340),

Gene: CicholasNage\_39 Start: 33079, Stop: 33381, Start Num: 40

Candidate Starts for CicholasNage\_39:

(Start: 28 @33043 has 5 MA's), (Start: 40 @33079 has 31 MA's), (61, 33214), (65, 33262), (67, 33271),  
(68, 33274), (69, 33292), (70, 33298), (80, 33343),

Gene: Clautastrophe\_39 Start: 34655, Stop: 34954, Start Num: 40

Candidate Starts for Clautastrophe\_39:

(Start: 40 @34655 has 31 MA's), (55, 34742), (65, 34838), (68, 34850),

Gene: Clipper\_48 Start: 35775, Stop: 36032, Start Num: 39

Candidate Starts for Clipper\_48:

(Start: 39 @35775 has 29 MA's), (Start: 47 @35793 has 57 MA's), (Start: 52 @35835 has 16 MA's),  
(54, 35847), (56, 35880), (63, 35946), (65, 35961), (72, 36009),

Gene: Collard\_42 Start: 34585, Stop: 34971, Start Num: 15

Candidate Starts for Collard\_42:

(Start: 15 @34585 has 12 MA's), (Start: 25 @34624 has 10 MA's), (49, 34690), (60, 34783), (64,  
34840), (65, 34846), (68, 34858), (71, 34891), (83, 34951),

Gene: CrimD\_44 Start: 35400, Stop: 35639, Start Num: 47

Candidate Starts for CrimD\_44:

(6, 35199), (7, 35205), (8, 35220), (14, 35304), (20, 35328), (Start: 29 @35352 has 1 MA's), (Start: 47  
@35400 has 57 MA's), (Start: 52 @35442 has 16 MA's), (54, 35454), (56, 35487), (63, 35553), (65,  
35568), (72, 35616),

Gene: Crossroads\_41 Start: 34469, Stop: 34699, Start Num: 52

Candidate Starts for Crossroads\_41:

(Start: 34 @34394 has 9 MA's), (Start: 36 @34400 has 4 MA's), (Start: 40 @34412 has 31 MA's),  
(Start: 52 @34469 has 16 MA's), (64, 34589), (65, 34595), (68, 34607), (84, 34688),

Gene: Curiosium\_47 Start: 34347, Stop: 34634, Start Num: 47

Candidate Starts for Curiosium\_47:

(Start: 47 @34347 has 57 MA's), (54, 34401), (58, 34443), (60, 34452), (86, 34623), (88, 34626),

Gene: DHan\_42 Start: 34427, Stop: 34657, Start Num: 52

Candidate Starts for DHan\_42:

(Start: 40 @34370 has 31 MA's), (Start: 52 @34427 has 16 MA's), (60, 34490), (61, 34505), (64,  
34547), (65, 34553), (68, 34565), (84, 34646),

Gene: Dadosky\_43 Start: 34519, Stop: 34866, Start Num: 25

Candidate Starts for Dadosky\_43:

(Start: 25 @34519 has 10 MA's), (49, 34585), (60, 34678), (64, 34735), (65, 34741), (68, 34753), (82,  
34834), (83, 34846),

Gene: Dalmuri\_44 Start: 35259, Stop: 35516, Start Num: 39

Candidate Starts for Dalmuri\_44:

(Start: 30 @35235 has 15 MA's), (Start: 38 @35256 has 7 MA's), (Start: 39 @35259 has 29 MA's),  
(Start: 47 @35277 has 57 MA's), (50, 35298), (Start: 52 @35319 has 16 MA's), (54, 35331), (56,  
35364), (63, 35430), (65, 35445), (72, 35493),

Gene: DarthP\_46 Start: 36145, Stop: 36378, Start Num: 47

Candidate Starts for DarthP\_46:

(Start: 47 @36145 has 57 MA's), (54, 36199), (65, 36313), (69, 36343),

Gene: Dartin\_46 Start: 35860, Stop: 36105, Start Num: 47

Candidate Starts for Dartin\_46:

(Start: 47 @35860 has 57 MA's), (53, 35911), (54, 35914), (65, 36028), (69, 36058),

Gene: Deby\_44 Start: 35405, Stop: 35644, Start Num: 47

Candidate Starts for Deby\_44:

(Start: 30 @35363 has 15 MA's), (Start: 38 @35384 has 7 MA's), (Start: 39 @35387 has 29 MA's),  
(Start: 47 @35405 has 57 MA's), (Start: 52 @35447 has 16 MA's), (54, 35459), (56, 35492), (63,  
35558), (65, 35573), (72, 35621),

Gene: Devera\_48 Start: 35896, Stop: 36177, Start Num: 30

Candidate Starts for Devera\_48:

(Start: 30 @35896 has 15 MA's), (Start: 39 @35920 has 29 MA's), (Start: 47 @35938 has 57 MA's),  
(50, 35959), (Start: 52 @35980 has 16 MA's), (54, 35992), (56, 36025), (63, 36091), (65, 36106),

Gene: DirkDirk\_38 Start: 33045, Stop: 33332, Start Num: 40

Candidate Starts for DirkDirk\_38:

(Start: 28 @33009 has 5 MA's), (Start: 40 @33045 has 31 MA's), (60, 33165), (61, 33180), (64, 33222),  
(65, 33228), (68, 33240), (69, 33258), (70, 33264), (85, 33327),

Gene: DismalFunk\_47 Start: 37222, Stop: 37542, Start Num: 41

Candidate Starts for DismalFunk\_47:

(Start: 41 @37222 has 5 MA's), (Start: 42 @37225 has 5 MA's), (Start: 47 @37234 has 57 MA's), (60,  
37339), (65, 37402), (69, 37432), (84, 37510), (87, 37525), (89, 37531),

Gene: DismalStressor\_47 Start: 37225, Stop: 37542, Start Num: 42

Candidate Starts for DismalStressor\_47:

(Start: 41 @37222 has 5 MA's), (Start: 42 @37225 has 5 MA's), (Start: 47 @37234 has 57 MA's), (60, 37339), (65, 37402), (69, 37432), (84, 37510), (87, 37525), (89, 37531),

Gene: Dole\_47 Start: 35940, Stop: 36179, Start Num: 47

Candidate Starts for Dole\_47:

(Start: 30 @35898 has 15 MA's), (Start: 39 @35922 has 29 MA's), (Start: 47 @35940 has 57 MA's), (50, 35961), (Start: 52 @35982 has 16 MA's), (54, 35994), (56, 36027), (63, 36093), (65, 36108),

Gene: Douge\_38 Start: 33062, Stop: 33373, Start Num: 36

Candidate Starts for Douge\_38:

(19, 33014), (Start: 26 @33035 has 4 MA's), (33, 33053), (Start: 34 @33056 has 9 MA's), (Start: 36 @33062 has 4 MA's), (Start: 40 @33074 has 31 MA's), (Start: 52 @33131 has 16 MA's), (64, 33251), (68, 33269), (72, 33305),

Gene: Douzhi\_38 Start: 33168, Stop: 33479, Start Num: 36

Candidate Starts for Douzhi\_38:

(19, 33120), (Start: 26 @33141 has 4 MA's), (33, 33159), (Start: 34 @33162 has 9 MA's), (Start: 36 @33168 has 4 MA's), (Start: 40 @33180 has 31 MA's), (Start: 52 @33237 has 16 MA's), (60, 33300), (64, 33357), (68, 33375), (72, 33411),

Gene: DrHayes\_45 Start: 36056, Stop: 36295, Start Num: 47

Candidate Starts for DrHayes\_45:

(6, 35855), (7, 35861), (8, 35876), (14, 35960), (20, 35984), (Start: 47 @36056 has 57 MA's), (Start: 52 @36098 has 16 MA's), (54, 36110), (56, 36143), (63, 36209),

Gene: DrSeegs\_41 Start: 34410, Stop: 34697, Start Num: 40

Candidate Starts for DrSeegs\_41:

(Start: 34 @34392 has 9 MA's), (Start: 36 @34398 has 4 MA's), (Start: 40 @34410 has 31 MA's), (Start: 52 @34467 has 16 MA's), (64, 34587), (65, 34593), (68, 34605), (84, 34686),

Gene: DuncansLeg\_39 Start: 34634, Stop: 34972, Start Num: 26

Candidate Starts for DuncansLeg\_39:

(Start: 26 @34634 has 4 MA's), (Start: 40 @34673 has 31 MA's), (55, 34760), (58, 34784), (65, 34856), (68, 34868), (69, 34886),

Gene: Durfee\_44 Start: 35432, Stop: 35713, Start Num: 30

Candidate Starts for Durfee\_44:

(Start: 30 @35432 has 15 MA's), (Start: 38 @35453 has 7 MA's), (Start: 39 @35456 has 29 MA's), (Start: 47 @35474 has 57 MA's), (50, 35495), (Start: 52 @35516 has 16 MA's), (54, 35528), (56, 35561), (63, 35627), (65, 35642), (72, 35690),

Gene: DyoEdafos\_40 Start: 33408, Stop: 33707, Start Num: 40

Candidate Starts for DyoEdafos\_40:

(19, 33348), (Start: 26 @33369 has 4 MA's), (33, 33387), (Start: 34 @33390 has 9 MA's), (Start: 36 @33396 has 4 MA's), (Start: 40 @33408 has 31 MA's), (64, 33585), (68, 33603),

Gene: Edugator\_42 Start: 34944, Stop: 35291, Start Num: 25

Candidate Starts for Edugator\_42:

(Start: 25 @34944 has 10 MA's), (49, 35010), (60, 35103), (64, 35160), (65, 35166), (68, 35178), (82, 35259), (83, 35271),

Gene: Ekdilam\_43 Start: 35707, Stop: 35940, Start Num: 47

Candidate Starts for Ekdilam\_43:

(10, 35590), (12, 35608), (Start: 47 @35707 has 57 MA's),

Gene: Ellson\_39 Start: 34649, Stop: 34948, Start Num: 40

Candidate Starts for Ellson\_39:

(Start: 26 @34610 has 4 MA's), (Start: 40 @34649 has 31 MA's), (55, 34736), (58, 34760), (65, 34832), (68, 34844), (69, 34862),

Gene: Emerson\_45 Start: 35135, Stop: 35392, Start Num: 39

Candidate Starts for Emerson\_45:

(Start: 30 @35111 has 15 MA's), (Start: 38 @35132 has 7 MA's), (Start: 39 @35135 has 29 MA's), (Start: 47 @35153 has 57 MA's), (50, 35174), (Start: 52 @35195 has 16 MA's), (54, 35207), (56, 35240), (63, 35306), (65, 35321), (72, 35369),

Gene: Enceladus\_38 Start: 33028, Stop: 33315, Start Num: 40

Candidate Starts for Enceladus\_38:

(Start: 28 @32992 has 5 MA's), (Start: 40 @33028 has 31 MA's), (60, 33148), (61, 33163), (64, 33205), (65, 33211), (68, 33223), (69, 33241), (70, 33247), (85, 33310),

Gene: Eponine\_50 Start: 36922, Stop: 37167, Start Num: 44

Candidate Starts for Eponine\_50:

(13, 36826), (Start: 44 @36922 has 18 MA's), (66, 37096),

Gene: Faith1\_41 Start: 34392, Stop: 34697, Start Num: 34

Candidate Starts for Faith1\_41:

(Start: 34 @34392 has 9 MA's), (Start: 36 @34398 has 4 MA's), (Start: 40 @34410 has 31 MA's), (Start: 52 @34467 has 16 MA's), (64, 34587), (65, 34593), (68, 34605), (84, 34686),

Gene: FarmResident\_39 Start: 33175, Stop: 33417, Start Num: 52

Candidate Starts for FarmResident\_39:

(19, 33058), (Start: 26 @33079 has 4 MA's), (33, 33097), (Start: 34 @33100 has 9 MA's), (Start: 36 @33106 has 4 MA's), (Start: 40 @33118 has 31 MA's), (Start: 52 @33175 has 16 MA's), (64, 33295), (68, 33313), (72, 33349),

Gene: Feyre\_43 Start: 35869, Stop: 36216, Start Num: 25

Candidate Starts for Feyre\_43:

(Start: 25 @35869 has 10 MA's), (68, 36103), (69, 36121), (71, 36136), (83, 36196),

Gene: Findley\_47 Start: 37218, Stop: 37535, Start Num: 42

Candidate Starts for Findley\_47:

(Start: 41 @37215 has 5 MA's), (Start: 42 @37218 has 5 MA's), (Start: 47 @37227 has 57 MA's), (60, 37332), (65, 37395), (69, 37425), (84, 37503), (87, 37518), (89, 37524),

Gene: Finemlucis\_41 Start: 34743, Stop: 34973, Start Num: 52

Candidate Starts for Finemlucis\_41:

(Start: 34 @34668 has 9 MA's), (Start: 36 @34674 has 4 MA's), (Start: 40 @34686 has 31 MA's), (Start: 52 @34743 has 16 MA's), (64, 34863), (65, 34869), (68, 34881), (84, 34962),

Gene: Finnry\_39 Start: 34658, Stop: 34957, Start Num: 40

Candidate Starts for Finnry\_39:

(Start: 40 @34658 has 31 MA's), (55, 34745), (58, 34769), (65, 34841), (68, 34853),

Gene: Fionnbharth\_48 Start: 36320, Stop: 36565, Start Num: 44

Candidate Starts for Fionnbharth\_48:

(Start: 44 @36320 has 18 MA's), (66, 36494), (76, 36554),

Gene: Gabriela\_41 Start: 34729, Stop: 34959, Start Num: 52

Candidate Starts for Gabriela\_41:

(Start: 34 @34654 has 9 MA's), (Start: 36 @34660 has 4 MA's), (Start: 40 @34672 has 31 MA's),  
(Start: 52 @34729 has 16 MA's), (64, 34849), (65, 34855), (68, 34867), (84, 34948),

Gene: Gaia\_69 Start: 45400, Stop: 45705, Start Num: 47

Candidate Starts for Gaia\_69:

(Start: 47 @45400 has 57 MA's), (54, 45454), (56, 45487), (65, 45568), (72, 45616),

Gene: Ganymede\_45 Start: 35592, Stop: 35831, Start Num: 47

Candidate Starts for Ganymede\_45:

(6, 35391), (7, 35397), (8, 35412), (14, 35496), (20, 35520), (Start: 29 @35544 has 1 MA's), (Start: 47  
@35592 has 57 MA's), (Start: 52 @35634 has 16 MA's), (54, 35646), (56, 35679), (63, 35745), (65,  
35760), (72, 35808),

Gene: Gardann\_41 Start: 34468, Stop: 34698, Start Num: 52

Candidate Starts for Gardann\_41:

(Start: 34 @34393 has 9 MA's), (Start: 36 @34399 has 4 MA's), (Start: 40 @34411 has 31 MA's),  
(Start: 52 @34468 has 16 MA's), (64, 34588), (65, 34594), (68, 34606), (84, 34687),

Gene: Gengar\_42 Start: 34445, Stop: 34831, Start Num: 15

Candidate Starts for Gengar\_42:

(Start: 15 @34445 has 12 MA's), (Start: 25 @34484 has 10 MA's), (68, 34718), (69, 34736), (71,  
34751), (83, 34811),

Gene: Geraldini\_46 Start: 36191, Stop: 36448, Start Num: 39

Candidate Starts for Geraldini\_46:

(Start: 29 @36167 has 1 MA's), (Start: 39 @36191 has 29 MA's), (Start: 47 @36209 has 57 MA's),  
(Start: 52 @36251 has 16 MA's), (54, 36263), (56, 36296), (63, 36362), (65, 36377), (72, 36425),

Gene: Guillsminger\_43 Start: 34416, Stop: 34802, Start Num: 15

Candidate Starts for Guillsminger\_43:

(Start: 15 @34416 has 12 MA's), (Start: 25 @34455 has 10 MA's), (68, 34689), (69, 34707), (71,  
34722), (83, 34782),

Gene: GuuelaD\_41 Start: 34506, Stop: 34736, Start Num: 52

Candidate Starts for GuuelaD\_41:

(Start: 34 @34431 has 9 MA's), (Start: 36 @34437 has 4 MA's), (Start: 40 @34449 has 31 MA's),  
(Start: 52 @34506 has 16 MA's), (64, 34626), (65, 34632), (68, 34644), (84, 34725),

Gene: Hafay\_41 Start: 34501, Stop: 34731, Start Num: 52

Candidate Starts for Hafay\_41:

(Start: 34 @34426 has 9 MA's), (Start: 36 @34432 has 4 MA's), (Start: 40 @34444 has 31 MA's),  
(Start: 52 @34501 has 16 MA's), (64, 34621), (65, 34627), (68, 34639), (77, 34693), (84, 34720),

Gene: Halena\_38 Start: 33054, Stop: 33356, Start Num: 40

Candidate Starts for Halena\_38:

(Start: 28 @33018 has 5 MA's), (Start: 40 @33054 has 31 MA's), (61, 33189), (65, 33237), (67, 33246),  
(68, 33249), (69, 33267), (70, 33273), (80, 33318),

Gene: HedwigODU\_44 Start: 35144, Stop: 35401, Start Num: 39

Candidate Starts for HedwigODU\_44:

(Start: 30 @35120 has 15 MA's), (Start: 38 @35141 has 7 MA's), (Start: 39 @35144 has 29 MA's),  
(Start: 47 @35162 has 57 MA's), (50, 35183), (Start: 52 @35204 has 16 MA's), (54, 35216), (56,  
35249), (63, 35315), (65, 35330), (72, 35378),

Gene: Heftyboy\_42 Start: 34566, Stop: 34952, Start Num: 15

Candidate Starts for Heftyboy\_42:

(Start: 15 @34566 has 12 MA's), (Start: 25 @34605 has 10 MA's), (68, 34839), (69, 34857), (71,  
34872), (83, 34932),

Gene: Homura\_44 Start: 35259, Stop: 35516, Start Num: 39

Candidate Starts for Homura\_44:

(Start: 30 @35235 has 15 MA's), (Start: 38 @35256 has 7 MA's), (Start: 39 @35259 has 29 MA's),  
(Start: 47 @35277 has 57 MA's), (50, 35298), (Start: 52 @35319 has 16 MA's), (54, 35331), (56,  
35364), (63, 35430), (65, 35445), (72, 35493),

Gene: Hurricane\_47 Start: 35860, Stop: 36099, Start Num: 47

Candidate Starts for Hurricane\_47:

(Start: 47 @35860 has 57 MA's), (61, 35980), (69, 36058), (78, 36085),

Gene: Hyperbowlee\_44 Start: 35432, Stop: 35713, Start Num: 30

Candidate Starts for Hyperbowlee\_44:

(Start: 30 @35432 has 15 MA's), (Start: 38 @35453 has 7 MA's), (Start: 39 @35456 has 29 MA's),  
(Start: 47 @35474 has 57 MA's), (50, 35495), (Start: 52 @35516 has 16 MA's), (54, 35528), (56,  
35561), (63, 35627), (65, 35642), (72, 35690),

Gene: Illumine\_47 Start: 35940, Stop: 36179, Start Num: 47

Candidate Starts for Illumine\_47:

(Start: 30 @35898 has 15 MA's), (Start: 39 @35922 has 29 MA's), (Start: 47 @35940 has 57 MA's),  
(50, 35961), (Start: 52 @35982 has 16 MA's), (54, 35994), (56, 36027), (63, 36093), (65, 36108),

Gene: Inky\_44 Start: 35259, Stop: 35516, Start Num: 39

Candidate Starts for Inky\_44:

(Start: 30 @35235 has 15 MA's), (Start: 38 @35256 has 7 MA's), (Start: 39 @35259 has 29 MA's),  
(Start: 47 @35277 has 57 MA's), (50, 35298), (Start: 52 @35319 has 16 MA's), (54, 35331), (56,  
35364), (63, 35430), (65, 35445), (72, 35493),

Gene: InvictusManeo\_42 Start: 34628, Stop: 35014, Start Num: 15

Candidate Starts for InvictusManeo\_42:

(Start: 15 @34628 has 12 MA's), (Start: 25 @34667 has 10 MA's), (49, 34733), (60, 34826), (64,  
34883), (65, 34889), (68, 34901), (71, 34934), (83, 34994),

Gene: Itos\_40 Start: 33373, Stop: 33603, Start Num: 52

Candidate Starts for Itos\_40:

(Start: 34 @33298 has 9 MA's), (Start: 36 @33304 has 4 MA's), (Start: 40 @33316 has 31 MA's),  
(Start: 52 @33373 has 16 MA's), (64, 33493), (65, 33499), (68, 33511), (84, 33592),

Gene: JAWS\_44 Start: 35130, Stop: 35390, Start Num: 38

Candidate Starts for JAWS\_44:

(Start: 30 @35109 has 15 MA's), (Start: 38 @35130 has 7 MA's), (Start: 39 @35133 has 29 MA's),  
(Start: 47 @35151 has 57 MA's), (50, 35172), (Start: 52 @35193 has 16 MA's), (54, 35205), (56,

35238), (63, 35304), (65, 35319), (72, 35367),

Gene: JF1\_48 Start: 36237, Stop: 36485, Start Num: 44

Candidate Starts for JF1\_48:

(Start: 44 @36237 has 18 MA's), (65, 36408), (66, 36411),

Gene: Jarvi\_44 Start: 35259, Stop: 35516, Start Num: 39

Candidate Starts for Jarvi\_44:

(Start: 30 @35235 has 15 MA's), (Start: 38 @35256 has 7 MA's), (Start: 39 @35259 has 29 MA's),  
(Start: 47 @35277 has 57 MA's), (50, 35298), (Start: 52 @35319 has 16 MA's), (54, 35331), (56,  
35364), (63, 35430), (65, 35445), (72, 35493),

Gene: Jayhawk\_45 Start: 35160, Stop: 35399, Start Num: 47

Candidate Starts for Jayhawk\_45:

(Start: 30 @35118 has 15 MA's), (Start: 38 @35139 has 7 MA's), (Start: 39 @35142 has 29 MA's),  
(Start: 47 @35160 has 57 MA's), (50, 35181), (Start: 52 @35202 has 16 MA's), (54, 35214), (56,  
35247), (63, 35313), (65, 35328), (72, 35376),

Gene: Jeckyll\_44 Start: 35259, Stop: 35516, Start Num: 39

Candidate Starts for Jeckyll\_44:

(Start: 30 @35235 has 15 MA's), (Start: 38 @35256 has 7 MA's), (Start: 39 @35259 has 29 MA's),  
(Start: 47 @35277 has 57 MA's), (50, 35298), (Start: 52 @35319 has 16 MA's), (54, 35331), (56,  
35364), (63, 35430), (65, 35445), (72, 35493),

Gene: JoeDirt\_38 Start: 32990, Stop: 33313, Start Num: 28

Candidate Starts for JoeDirt\_38:

(Start: 28 @32990 has 5 MA's), (Start: 40 @33026 has 31 MA's), (60, 33146), (61, 33161), (64, 33203),  
(65, 33209), (68, 33221), (69, 33239), (70, 33245), (85, 33308),

Gene: Joy99\_44 Start: 35164, Stop: 35445, Start Num: 30

Candidate Starts for Joy99\_44:

(Start: 30 @35164 has 15 MA's), (Start: 38 @35185 has 7 MA's), (Start: 39 @35188 has 29 MA's),  
(Start: 47 @35206 has 57 MA's), (50, 35227), (Start: 52 @35248 has 16 MA's), (54, 35260), (56,  
35293), (63, 35359), (65, 35374), (72, 35422),

Gene: Jubie\_39 Start: 34656, Stop: 34955, Start Num: 40

Candidate Starts for Jubie\_39:

(Start: 40 @34656 has 31 MA's), (55, 34743), (65, 34839), (68, 34851),

Gene: Juliette\_50 Start: 36393, Stop: 36641, Start Num: 44

Candidate Starts for Juliette\_50:

(13, 36297), (24, 36339), (Start: 44 @36393 has 18 MA's), (65, 36564), (66, 36567),

Gene: Kahlid\_41 Start: 34398, Stop: 34703, Start Num: 34

Candidate Starts for Kahlid\_41:

(Start: 34 @34398 has 9 MA's), (Start: 36 @34404 has 4 MA's), (Start: 40 @34416 has 31 MA's),  
(Start: 52 @34473 has 16 MA's), (64, 34593), (65, 34599), (68, 34611), (77, 34665), (84, 34692),

Gene: Keshu\_48 Start: 35918, Stop: 36157, Start Num: 47

Candidate Starts for Keshu\_48:

(Start: 47 @35918 has 57 MA's), (61, 36038), (69, 36116), (78, 36143),

Gene: Kingsolomon\_39 Start: 34655, Stop: 34954, Start Num: 40

Candidate Starts for Kingsolomon\_39:  
(Start: 40 @34655 has 31 MA's), (55, 34742), (65, 34838), (68, 34850),

Gene: KirDoubleO7\_37 Start: 34677, Stop: 34976, Start Num: 40  
Candidate Starts for KirDoubleO7\_37:  
(Start: 26 @34638 has 4 MA's), (Start: 40 @34677 has 31 MA's), (55, 34764), (58, 34788), (65, 34860),  
(68, 34872), (69, 34890),

Gene: Kratio\_41 Start: 34179, Stop: 34565, Start Num: 15  
Candidate Starts for Kratio\_41:  
(Start: 15 @34179 has 12 MA's), (Start: 25 @34218 has 10 MA's), (49, 34284), (60, 34377), (64,  
34434), (65, 34440), (68, 34452), (71, 34485), (83, 34545),

Gene: Kropertea\_38 Start: 33171, Stop: 33530, Start Num: 19  
Candidate Starts for Kropertea\_38:  
(19, 33171), (33, 33210), (Start: 34 @33213 has 9 MA's), (Start: 36 @33219 has 4 MA's), (Start: 40  
@33231 has 31 MA's), (64, 33408), (68, 33426),

Gene: Krueger\_50 Start: 36110, Stop: 36346, Start Num: 47  
Candidate Starts for Krueger\_50:  
(Start: 47 @36110 has 57 MA's), (53, 36161), (61, 36230), (63, 36263), (65, 36278), (68, 36290),

Gene: Krypton555\_39 Start: 34572, Stop: 34871, Start Num: 40  
Candidate Starts for Krypton555\_39:  
(Start: 26 @34533 has 4 MA's), (Start: 40 @34572 has 31 MA's), (55, 34659), (58, 34683), (65, 34755),  
(68, 34767), (80, 34836),

Gene: Larva\_43 Start: 34386, Stop: 34733, Start Num: 25  
Candidate Starts for Larva\_43:  
(Start: 25 @34386 has 10 MA's), (49, 34452), (60, 34545), (64, 34602), (65, 34608), (68, 34620), (82,  
34701), (83, 34713),

Gene: LaterM\_45 Start: 36054, Stop: 36293, Start Num: 47  
Candidate Starts for LaterM\_45:  
(Start: 30 @36012 has 15 MA's), (Start: 39 @36036 has 29 MA's), (Start: 47 @36054 has 57 MA's),  
(50, 36075), (Start: 52 @36096 has 16 MA's), (54, 36108), (56, 36141), (63, 36207), (65, 36222),

Gene: LeBron\_39 Start: 33034, Stop: 33357, Start Num: 28  
Candidate Starts for LeBron\_39:  
(Start: 28 @33034 has 5 MA's), (Start: 40 @33070 has 31 MA's), (60, 33190), (61, 33205), (64, 33247),  
(65, 33253), (68, 33265), (69, 33283), (70, 33289), (85, 33352),

Gene: Leston\_42 Start: 34584, Stop: 34931, Start Num: 25  
Candidate Starts for Leston\_42:  
(Start: 15 @34545 has 12 MA's), (Start: 25 @34584 has 10 MA's), (68, 34818), (69, 34836), (71,  
34851), (83, 34911),

Gene: Lewan\_41 Start: 34391, Stop: 34690, Start Num: 36  
Candidate Starts for Lewan\_41:  
(Start: 36 @34391 has 4 MA's), (Start: 40 @34403 has 31 MA's), (Start: 52 @34460 has 16 MA's), (64,  
34580), (65, 34586), (68, 34598), (84, 34679),

Gene: LilDestine\_41 Start: 34396, Stop: 34695, Start Num: 36



Candidate Starts for LilDestine\_41:

(Start: 34 @34390 has 9 MA's), (Start: 36 @34396 has 4 MA's), (Start: 40 @34408 has 31 MA's), (Start: 52 @34465 has 16 MA's), (64, 34585), (65, 34591), (68, 34603), (84, 34684),

Gene: LilPharaoh\_39 Start: 34467, Stop: 34712, Start Num: 47

Candidate Starts for LilPharaoh\_39:

(Start: 47 @34467 has 57 MA's), (53, 34518), (56, 34554), (65, 34635), (69, 34665), (70, 34671),

Gene: LindNT\_44 Start: 35343, Stop: 35582, Start Num: 47

Candidate Starts for LindNT\_44:

(6, 35142), (7, 35148), (8, 35163), (14, 35247), (20, 35271), (Start: 47 @35343 has 57 MA's), (50, 35364), (Start: 52 @35385 has 16 MA's), (54, 35397), (56, 35430), (63, 35496), (65, 35511),

Gene: Llorens\_44 Start: 35259, Stop: 35516, Start Num: 39

Candidate Starts for Llorens\_44:

(Start: 30 @35235 has 15 MA's), (Start: 38 @35256 has 7 MA's), (Start: 39 @35259 has 29 MA's), (Start: 47 @35277 has 57 MA's), (50, 35298), (Start: 52 @35319 has 16 MA's), (54, 35331), (56, 35364), (63, 35430), (65, 35445), (72, 35493),

Gene: Loadrie\_41 Start: 34424, Stop: 34729, Start Num: 34

Candidate Starts for Loadrie\_41:

(Start: 34 @34424 has 9 MA's), (Start: 36 @34430 has 4 MA's), (Start: 40 @34442 has 31 MA's), (Start: 52 @34499 has 16 MA's), (64, 34619), (65, 34625), (68, 34637), (77, 34691), (84, 34718),

Gene: Lumos\_39 Start: 34652, Stop: 34951, Start Num: 40

Candidate Starts for Lumos\_39:

(Start: 40 @34652 has 31 MA's), (55, 34739), (65, 34835), (68, 34847),

Gene: Lunahalos\_44 Start: 35259, Stop: 35516, Start Num: 39

Candidate Starts for Lunahalos\_44:

(Start: 30 @35235 has 15 MA's), (Start: 38 @35256 has 7 MA's), (Start: 39 @35259 has 29 MA's), (Start: 47 @35277 has 57 MA's), (50, 35298), (Start: 52 @35319 has 16 MA's), (54, 35331), (56, 35364), (63, 35430), (65, 35445), (72, 35493),

Gene: MAckerman\_39 Start: 33048, Stop: 33350, Start Num: 40

Candidate Starts for MAckerman\_39:

(Start: 28 @33012 has 5 MA's), (Start: 40 @33048 has 31 MA's), (61, 33183), (65, 33231), (67, 33240), (68, 33243), (69, 33261), (70, 33267), (80, 33312),

Gene: MacKat\_39 Start: 30659, Stop: 30916, Start Num: 39

Candidate Starts for MacKat\_39:

(9, 30554), (Start: 39 @30659 has 29 MA's), (Start: 47 @30677 has 57 MA's), (Start: 52 @30719 has 16 MA's), (54, 30731), (56, 30764), (63, 30830), (65, 30845), (72, 30893),

Gene: MalagasyRose\_45 Start: 33899, Stop: 34168, Start Num: 42

Candidate Starts for MalagasyRose\_45:

(Start: 42 @33899 has 5 MA's), (46, 33908), (51, 33947), (54, 33962), (57, 34004), (62, 34040), (69, 34106),

Gene: Malthus\_49 Start: 36081, Stop: 36329, Start Num: 44

Candidate Starts for Malthus\_49:

(13, 35985), (24, 36027), (Start: 44 @36081 has 18 MA's), (65, 36252), (66, 36255),

Gene: Marcoliusprime\_47 Start: 37222, Stop: 37542, Start Num: 41

Candidate Starts for Marcoliusprime\_47:

(Start: 41 @37222 has 5 MA's), (Start: 42 @37225 has 5 MA's), (Start: 47 @37234 has 57 MA's), (60, 37339), (65, 37402), (69, 37432), (84, 37510), (87, 37525), (89, 37531),

Gene: Marshawn\_47 Start: 36184, Stop: 36432, Start Num: 47

Candidate Starts for Marshawn\_47:

(Start: 47 @36184 has 57 MA's), (50, 36205), (54, 36238), (65, 36352), (69, 36382), (74, 36406),

Gene: McMater\_46 Start: 35860, Stop: 36105, Start Num: 47

Candidate Starts for McMater\_46:

(Start: 47 @35860 has 57 MA's), (53, 35911), (54, 35914), (65, 36028), (69, 36058),

Gene: Mdavu\_40 Start: 34728, Stop: 34973, Start Num: 47

Candidate Starts for Mdavu\_40:

(Start: 47 @34728 has 57 MA's), (53, 34779), (56, 34815), (65, 34896), (69, 34926), (70, 34932),

Gene: MeaningOfLife\_45 Start: 36086, Stop: 36325, Start Num: 47

Candidate Starts for MeaningOfLife\_45:

(6, 35885), (7, 35891), (8, 35906), (14, 35990), (20, 36014), (Start: 29 @36038 has 1 MA's), (Start: 47 @36086 has 57 MA's), (Start: 52 @36128 has 16 MA's), (54, 36140), (56, 36173), (63, 36239), (65, 36254), (72, 36302),

Gene: Megsy\_45 Start: 35402, Stop: 35641, Start Num: 47

Candidate Starts for Megsy\_45:

(6, 35201), (7, 35207), (8, 35222), (14, 35306), (20, 35330), (Start: 29 @35354 has 1 MA's), (Start: 47 @35402 has 57 MA's), (Start: 52 @35444 has 16 MA's), (54, 35456), (56, 35489), (63, 35555), (65, 35570), (72, 35618),

Gene: Miley16\_41 Start: 34467, Stop: 34697, Start Num: 52

Candidate Starts for Miley16\_41:

(Start: 34 @34392 has 9 MA's), (Start: 36 @34398 has 4 MA's), (Start: 40 @34410 has 31 MA's), (Start: 52 @34467 has 16 MA's), (64, 34587), (65, 34593), (68, 34605), (84, 34686),

Gene: Milly\_47 Start: 37198, Stop: 37515, Start Num: 42

Candidate Starts for Milly\_47:

(Start: 41 @37195 has 5 MA's), (Start: 42 @37198 has 5 MA's), (Start: 47 @37207 has 57 MA's), (60, 37312), (65, 37375), (69, 37405), (84, 37483), (87, 37498), (89, 37504),

Gene: MiniLon\_39 Start: 34425, Stop: 34763, Start Num: 26

Candidate Starts for MiniLon\_39:

(Start: 26 @34425 has 4 MA's), (Start: 40 @34464 has 31 MA's), (55, 34551), (58, 34575), (65, 34647), (68, 34659), (69, 34677),

Gene: MiniMac\_39 Start: 34422, Stop: 34760, Start Num: 26

Candidate Starts for MiniMac\_39:

(Start: 16 @34392 has 1 MA's), (Start: 26 @34422 has 4 MA's), (Start: 40 @34461 has 31 MA's), (55, 34548), (58, 34572), (65, 34644), (68, 34656), (69, 34674),

Gene: Miryou\_44 Start: 36748, Stop: 37134, Start Num: 15

Candidate Starts for Miryou\_44:

(Start: 15 @36748 has 12 MA's), (Start: 25 @36787 has 10 MA's), (68, 37021), (69, 37039), (71, 37054), (83, 37114),

Gene: MissDaisy\_46 Start: 35556, Stop: 35804, Start Num: 44

Candidate Starts for MissDaisy\_46:

(22, 35493), (35, 35529), (37, 35535), (Start: 44 @35556 has 18 MA's), (65, 35727), (66, 35730),

Gene: Mitti\_48 Start: 36257, Stop: 36505, Start Num: 44

Candidate Starts for Mitti\_48:

(13, 36161), (Start: 44 @36257 has 18 MA's), (65, 36428), (66, 36431),

Gene: MkaliMitinis3\_41 Start: 34400, Stop: 34699, Start Num: 36

Candidate Starts for MkaliMitinis3\_41:

(Start: 34 @34394 has 9 MA's), (Start: 36 @34400 has 4 MA's), (Start: 40 @34412 has 31 MA's),  
(Start: 52 @34469 has 16 MA's), (64, 34589), (65, 34595), (68, 34607), (84, 34688),

Gene: Moostard\_39 Start: 34657, Stop: 34956, Start Num: 40

Candidate Starts for Moostard\_39:

(Start: 40 @34657 has 31 MA's), (55, 34744), (58, 34768), (65, 34840), (68, 34852),

Gene: MsGreen\_39 Start: 34655, Stop: 34954, Start Num: 40

Candidate Starts for MsGreen\_39:

(Start: 40 @34655 has 31 MA's), (55, 34742), (65, 34838), (68, 34850),

Gene: Mufasa\_47 Start: 36779, Stop: 37099, Start Num: 41

Candidate Starts for Mufasa\_47:

(Start: 41 @36779 has 5 MA's), (Start: 42 @36782 has 5 MA's), (Start: 47 @36791 has 57 MA's), (60,  
36896), (65, 36959), (69, 36989), (80, 37040), (84, 37067), (87, 37082), (89, 37088),

Gene: Murucutumbu\_45 Start: 36105, Stop: 36386, Start Num: 30

Candidate Starts for Murucutumbu\_45:

(Start: 30 @36105 has 15 MA's), (Start: 39 @36129 has 29 MA's), (Start: 47 @36147 has 57 MA's),  
(50, 36168), (Start: 52 @36189 has 16 MA's), (54, 36201), (56, 36234), (63, 36300), (65, 36315),

Gene: Mynx\_45 Start: 35478, Stop: 35717, Start Num: 47

Candidate Starts for Mynx\_45:

(Start: 30 @35436 has 15 MA's), (Start: 38 @35457 has 7 MA's), (Start: 39 @35460 has 29 MA's),  
(Start: 47 @35478 has 57 MA's), (50, 35499), (Start: 52 @35520 has 16 MA's), (54, 35532), (56,  
35565), (63, 35631), (65, 35646), (72, 35694),

Gene: Nebkiss\_69 Start: 44011, Stop: 44316, Start Num: 47

Candidate Starts for Nebkiss\_69:

(Start: 47 @44011 has 57 MA's), (54, 44065), (56, 44098), (65, 44179), (72, 44227),

Gene: Neighly\_43 Start: 34451, Stop: 34732, Start Num: 49

Candidate Starts for Neighly\_43:

(Start: 25 @34385 has 10 MA's), (49, 34451), (60, 34544), (64, 34601), (65, 34607), (68, 34619), (82,  
34700), (83, 34712),

Gene: Nergal\_41 Start: 33794, Stop: 34084, Start Num: 39

Candidate Starts for Nergal\_41:

(Start: 39 @33794 has 29 MA's), (43, 33809), (54, 33866), (56, 33899), (59, 33911), (60, 33917), (61,  
33932), (66, 33983), (69, 34010), (72, 34028),

Gene: Netyap\_41 Start: 34467, Stop: 34697, Start Num: 52

Candidate Starts for Netyap\_41:

(Start: 34 @34392 has 9 MA's), (Start: 36 @34398 has 4 MA's), (Start: 40 @34410 has 31 MA's),  
(Start: 52 @34467 has 16 MA's), (64, 34587), (65, 34593), (68, 34605), (84, 34686),

Gene: Nicholas\_39 Start: 34655, Stop: 34954, Start Num: 40

Candidate Starts for Nicholas\_39:

(Start: 40 @34655 has 31 MA's), (55, 34742), (65, 34838), (68, 34850),

Gene: Nicholasp3\_41 Start: 34393, Stop: 34698, Start Num: 34

Candidate Starts for Nicholasp3\_41:

(Start: 34 @34393 has 9 MA's), (Start: 36 @34399 has 4 MA's), (Start: 40 @34411 has 31 MA's),  
(Start: 52 @34468 has 16 MA's), (64, 34588), (65, 34594), (68, 34606), (84, 34687),

Gene: Niklas\_46 Start: 35918, Stop: 36166, Start Num: 47

Candidate Starts for Niklas\_46:

(Start: 47 @35918 has 57 MA's), (54, 35972), (65, 36086), (69, 36116), (72, 36134),

Gene: November\_46 Start: 35863, Stop: 36099, Start Num: 47

Candidate Starts for November\_46:

(12, 35764), (Start: 47 @35863 has 57 MA's), (63, 36016), (69, 36061), (78, 36088),

Gene: Nutello\_39 Start: 34739, Stop: 34984, Start Num: 47

Candidate Starts for Nutello\_39:

(Start: 47 @34739 has 57 MA's), (53, 34790), (56, 34826), (65, 34907), (69, 34937), (70, 34943),

Gene: OhShagHennessy\_38 Start: 33016, Stop: 33303, Start Num: 40

Candidate Starts for OhShagHennessy\_38:

(Start: 28 @32980 has 5 MA's), (Start: 40 @33016 has 31 MA's), (60, 33136), (61, 33151), (64, 33193),  
(65, 33199), (68, 33211), (69, 33229), (70, 33235), (85, 33298),

Gene: OkiRoe\_42 Start: 34418, Stop: 34804, Start Num: 15

Candidate Starts for OkiRoe\_42:

(Start: 15 @34418 has 12 MA's), (Start: 25 @34457 has 10 MA's), (68, 34691), (69, 34709), (71,  
34724), (83, 34784),

Gene: OmniCritical\_47 Start: 36066, Stop: 36314, Start Num: 44

Candidate Starts for OmniCritical\_47:

(13, 35970), (24, 36012), (Start: 44 @36066 has 18 MA's), (65, 36237), (66, 36240),

Gene: Omnicron\_45 Start: 34067, Stop: 34414, Start Num: 25

Candidate Starts for Omnicron\_45:

(18, 34046), (Start: 25 @34067 has 10 MA's), (48, 34124), (65, 34289), (68, 34301), (72, 34337), (83,  
34394),

Gene: PYPDinur\_38 Start: 33159, Stop: 33479, Start Num: 33

Candidate Starts for PYPDinur\_38:

(19, 33120), (Start: 26 @33141 has 4 MA's), (33, 33159), (Start: 34 @33162 has 9 MA's), (Start: 36  
@33168 has 4 MA's), (Start: 40 @33180 has 31 MA's), (Start: 52 @33237 has 16 MA's), (60, 33300),  
(64, 33357), (68, 33375), (72, 33411),

Gene: Padfoot\_44 Start: 35474, Stop: 35713, Start Num: 47

Candidate Starts for Padfoot\_44:

(Start: 30 @35432 has 15 MA's), (Start: 38 @35453 has 7 MA's), (Start: 39 @35456 has 29 MA's), (Start: 47 @35474 has 57 MA's), (50, 35495), (Start: 52 @35516 has 16 MA's), (54, 35528), (56, 35561), (63, 35627), (65, 35642), (72, 35690),

Gene: Padpat\_45 Start: 35153, Stop: 35392, Start Num: 47

Candidate Starts for Padpat\_45:

(Start: 30 @35111 has 15 MA's), (Start: 38 @35132 has 7 MA's), (Start: 39 @35135 has 29 MA's), (Start: 47 @35153 has 57 MA's), (50, 35174), (Start: 52 @35195 has 16 MA's), (54, 35207), (56, 35240), (63, 35306), (65, 35321), (72, 35369),

Gene: Paola\_42 Start: 34416, Stop: 34802, Start Num: 15

Candidate Starts for Paola\_42:

(Start: 15 @34416 has 12 MA's), (Start: 25 @34455 has 10 MA's), (68, 34689), (69, 34707), (71, 34722), (83, 34782),

Gene: Patt\_45 Start: 35280, Stop: 35528, Start Num: 44

Candidate Starts for Patt\_45:

(22, 35217), (35, 35253), (37, 35259), (Start: 44 @35280 has 18 MA's), (65, 35451), (66, 35454),

Gene: Peanam\_46 Start: 35828, Stop: 36124, Start Num: 28

Candidate Starts for Peanam\_46:

(17, 35798), (Start: 28 @35828 has 5 MA's), (Start: 47 @35876 has 57 MA's), (54, 35930), (65, 36044), (69, 36074), (72, 36092),

Gene: Peel\_44 Start: 35261, Stop: 35518, Start Num: 39

Candidate Starts for Peel\_44:

(Start: 30 @35237 has 15 MA's), (Start: 38 @35258 has 7 MA's), (Start: 39 @35261 has 29 MA's), (Start: 47 @35279 has 57 MA's), (50, 35300), (Start: 52 @35321 has 16 MA's), (54, 35333), (56, 35366), (63, 35432), (65, 35447), (72, 35495),

Gene: PhelpsODU\_46 Start: 35137, Stop: 35373, Start Num: 47

Candidate Starts for PhelpsODU\_46:

(11, 35029), (Start: 47 @35137 has 57 MA's), (53, 35188), (54, 35191), (61, 35257), (63, 35290),

Gene: Phrank\_47 Start: 35094, Stop: 35330, Start Num: 47

Candidate Starts for Phrank\_47:

(Start: 29 @35046 has 1 MA's), (Start: 47 @35094 has 57 MA's), (53, 35145), (54, 35148), (61, 35214),

Gene: Piatt\_44 Start: 35432, Stop: 35713, Start Num: 30

Candidate Starts for Piatt\_44:

(Start: 30 @35432 has 15 MA's), (Start: 38 @35453 has 7 MA's), (Start: 39 @35456 has 29 MA's), (Start: 47 @35474 has 57 MA's), (50, 35495), (Start: 52 @35516 has 16 MA's), (54, 35528), (56, 35561), (63, 35627), (65, 35642), (72, 35690),

Gene: Pokerus\_43 Start: 35182, Stop: 35439, Start Num: 39

Candidate Starts for Pokerus\_43:

(Start: 29 @35158 has 1 MA's), (Start: 39 @35182 has 29 MA's), (Start: 47 @35200 has 57 MA's), (Start: 52 @35242 has 16 MA's), (54, 35254), (56, 35287), (63, 35353), (65, 35368), (72, 35416),

Gene: Pochiewood\_38 Start: 33044, Stop: 33331, Start Num: 40

Candidate Starts for Pochiewood\_38:

(Start: 28 @33008 has 5 MA's), (Start: 40 @33044 has 31 MA's), (60, 33164), (61, 33179), (64, 33221), (65, 33227), (68, 33239), (69, 33257), (70, 33263), (85, 33326),

Gene: Prithvi\_45 Start: 35343, Stop: 35582, Start Num: 47

Candidate Starts for Prithvi\_45:

(6, 35142), (7, 35148), (8, 35163), (14, 35247), (20, 35271), (Start: 47 @35343 has 57 MA's), (50, 35364), (Start: 52 @35385 has 16 MA's), (54, 35397), (56, 35430), (63, 35496), (65, 35511),

Gene: Psycho\_43 Start: 34516, Stop: 34863, Start Num: 25

Candidate Starts for Psycho\_43:

(Start: 25 @34516 has 10 MA's), (49, 34582), (60, 34675), (64, 34732), (65, 34738), (68, 34750), (82, 34831), (83, 34843),

Gene: Quby\_39 Start: 33131, Stop: 33373, Start Num: 52

Candidate Starts for Quby\_39:

(19, 33014), (Start: 26 @33035 has 4 MA's), (33, 33053), (Start: 34 @33056 has 9 MA's), (Start: 36 @33062 has 4 MA's), (Start: 40 @33074 has 31 MA's), (Start: 52 @33131 has 16 MA's), (60, 33194), (64, 33251), (68, 33269), (72, 33305),

Gene: QuincyRose\_43 Start: 35592, Stop: 35831, Start Num: 47

Candidate Starts for QuincyRose\_43:

(6, 35391), (7, 35397), (8, 35412), (14, 35496), (20, 35520), (Start: 29 @35544 has 1 MA's), (Start: 47 @35592 has 57 MA's), (Start: 52 @35634 has 16 MA's), (54, 35646), (56, 35679), (63, 35745), (65, 35760), (72, 35808),

Gene: Ramen\_44 Start: 35122, Stop: 35403, Start Num: 30

Candidate Starts for Ramen\_44:

(Start: 30 @35122 has 15 MA's), (Start: 38 @35143 has 7 MA's), (Start: 39 @35146 has 29 MA's), (Start: 47 @35164 has 57 MA's), (50, 35185), (Start: 52 @35206 has 16 MA's), (54, 35218), (56, 35251), (63, 35317), (65, 35332), (72, 35380),

Gene: Rando14\_44 Start: 33637, Stop: 33984, Start Num: 25

Candidate Starts for Rando14\_44:

(1, 33382), (2, 33388), (3, 33391), (4, 33415), (18, 33616), (Start: 25 @33637 has 10 MA's), (48, 33694), (65, 33859), (68, 33871), (83, 33964),

Gene: Rapunzel97\_44 Start: 35142, Stop: 35399, Start Num: 39

Candidate Starts for Rapunzel97\_44:

(Start: 30 @35118 has 15 MA's), (Start: 38 @35139 has 7 MA's), (Start: 39 @35142 has 29 MA's), (Start: 47 @35160 has 57 MA's), (50, 35181), (Start: 52 @35202 has 16 MA's), (54, 35214), (56, 35247), (63, 35313), (65, 35328), (72, 35376),

Gene: Reptar3000\_46 Start: 35271, Stop: 35519, Start Num: 44

Candidate Starts for Reptar3000\_46:

(13, 35175), (24, 35217), (Start: 44 @35271 has 18 MA's), (65, 35442), (66, 35445),

Gene: Richo\_46 Start: 35860, Stop: 36105, Start Num: 47

Candidate Starts for Richo\_46:

(Start: 47 @35860 has 57 MA's), (53, 35911), (54, 35914), (65, 36028), (69, 36058),

Gene: Rose5\_38 Start: 33043, Stop: 33345, Start Num: 40

Candidate Starts for Rose5\_38:

(Start: 28 @33007 has 5 MA's), (Start: 40 @33043 has 31 MA's), (61, 33178), (65, 33226), (67, 33235), (68, 33238), (69, 33256), (70, 33262), (80, 33307),

Gene: Rosmarinus\_44 Start: 35247, Stop: 35504, Start Num: 39

Candidate Starts for Rosmarinus\_44:

(Start: 30 @35223 has 15 MA's), (Start: 38 @35244 has 7 MA's), (Start: 39 @35247 has 29 MA's), (Start: 47 @35265 has 57 MA's), (50, 35286), (Start: 52 @35307 has 16 MA's), (54, 35319), (56, 35352), (63, 35418), (65, 35433), (72, 35481),

Gene: Rumpelstiltskin\_41 Start: 34659, Stop: 34964, Start Num: 34

Candidate Starts for Rumpelstiltskin\_41:

(Start: 34 @34659 has 9 MA's), (Start: 36 @34665 has 4 MA's), (Start: 40 @34677 has 31 MA's), (Start: 52 @34734 has 16 MA's), (64, 34854), (65, 34860), (68, 34872), (84, 34953),

Gene: SamuelLPlaqson\_45 Start: 36056, Stop: 36295, Start Num: 47

Candidate Starts for SamuelLPlaqson\_45:

(6, 35855), (7, 35861), (8, 35876), (14, 35960), (20, 35984), (Start: 47 @36056 has 57 MA's), (Start: 52 @36098 has 16 MA's), (54, 36110), (56, 36143), (63, 36209),

Gene: Sarshaun\_41 Start: 34432, Stop: 34731, Start Num: 36

Candidate Starts for Sarshaun\_41:

(Start: 34 @34426 has 9 MA's), (Start: 36 @34432 has 4 MA's), (Start: 40 @34444 has 31 MA's), (Start: 52 @34501 has 16 MA's), (64, 34621), (65, 34627), (68, 34639), (77, 34693), (84, 34720),

Gene: Shadow1\_49 Start: 36255, Stop: 36491, Start Num: 47

Candidate Starts for Shadow1\_49:

(Start: 47 @36255 has 57 MA's), (53, 36306), (61, 36375), (68, 36435),

Gene: Shaobing\_46 Start: 35893, Stop: 36141, Start Num: 47

Candidate Starts for Shaobing\_46:

(Start: 47 @35893 has 57 MA's), (54, 35947), (65, 36061), (69, 36091), (72, 36109),

Gene: Sheng711\_39 Start: 33120, Stop: 33479, Start Num: 19

Candidate Starts for Sheng711\_39:

(19, 33120), (Start: 26 @33141 has 4 MA's), (33, 33159), (Start: 34 @33162 has 9 MA's), (Start: 36 @33168 has 4 MA's), (Start: 40 @33180 has 31 MA's), (Start: 52 @33237 has 16 MA's), (60, 33300), (64, 33357), (68, 33375), (72, 33411),

Gene: ShiaSurprise\_45 Start: 35474, Stop: 35713, Start Num: 47

Candidate Starts for ShiaSurprise\_45:

(Start: 30 @35432 has 15 MA's), (Start: 38 @35453 has 7 MA's), (Start: 39 @35456 has 29 MA's), (Start: 47 @35474 has 57 MA's), (50, 35495), (Start: 52 @35516 has 16 MA's), (54, 35528), (56, 35561), (63, 35627), (65, 35642), (72, 35690),

Gene: Silverleaf\_38 Start: 33043, Stop: 33345, Start Num: 40

Candidate Starts for Silverleaf\_38:

(Start: 28 @33007 has 5 MA's), (Start: 40 @33043 has 31 MA's), (61, 33178), (65, 33226), (67, 33235), (68, 33238), (69, 33256), (70, 33262), (80, 33307),

Gene: SirPhilip\_46 Start: 36474, Stop: 36710, Start Num: 47

Candidate Starts for SirPhilip\_46:

(21, 36405), (Start: 29 @36426 has 1 MA's), (Start: 47 @36474 has 57 MA's), (53, 36525), (54, 36528), (63, 36627), (69, 36672),

Gene: Slarp\_48 Start: 36169, Stop: 36417, Start Num: 44

Candidate Starts for Slarp\_48:

(13, 36073), (Start: 44 @36169 has 18 MA's), (65, 36340), (66, 36343),

Gene: Slimphazie\_44 Start: 35142, Stop: 35399, Start Num: 39

Candidate Starts for Slimphazie\_44:

(Start: 30 @35118 has 15 MA's), (Start: 38 @35139 has 7 MA's), (Start: 39 @35142 has 29 MA's),  
(Start: 47 @35160 has 57 MA's), (50, 35181), (Start: 52 @35202 has 16 MA's), (54, 35214), (56,  
35247), (63, 35313), (65, 35328), (72, 35376),

Gene: Snenia\_39 Start: 34656, Stop: 34955, Start Num: 40

Candidate Starts for Snenia\_39:

(Start: 40 @34656 has 31 MA's), (55, 34743), (65, 34839), (68, 34851),

Gene: SoSeph\_42 Start: 34566, Stop: 34952, Start Num: 15

Candidate Starts for SoSeph\_42:

(Start: 15 @34566 has 12 MA's), (Start: 25 @34605 has 10 MA's), (68, 34839), (69, 34857), (71,  
34872), (83, 34932),

Gene: Soap141\_41 Start: 34501, Stop: 34731, Start Num: 52

Candidate Starts for Soap141\_41:

(Start: 34 @34426 has 9 MA's), (Start: 36 @34432 has 4 MA's), (Start: 40 @34444 has 31 MA's),  
(Start: 52 @34501 has 16 MA's), (64, 34621), (65, 34627), (68, 34639), (77, 34693), (84, 34720),

Gene: Spock\_44 Start: 35260, Stop: 35517, Start Num: 39

Candidate Starts for Spock\_44:

(Start: 30 @35236 has 15 MA's), (Start: 38 @35257 has 7 MA's), (Start: 39 @35260 has 29 MA's),  
(Start: 47 @35278 has 57 MA's), (50, 35299), (Start: 52 @35320 has 16 MA's), (54, 35332), (56,  
35365), (63, 35431), (65, 35446), (72, 35494),

Gene: Stinson\_45 Start: 35667, Stop: 35906, Start Num: 47

Candidate Starts for Stinson\_45:

(Start: 30 @35625 has 15 MA's), (Start: 39 @35649 has 29 MA's), (Start: 47 @35667 has 57 MA's),  
(50, 35688), (Start: 52 @35709 has 16 MA's), (54, 35721), (56, 35754), (63, 35820), (65, 35835),

Gene: Strobilo\_47 Start: 37197, Stop: 37517, Start Num: 41

Candidate Starts for Strobilo\_47:

(Start: 41 @37197 has 5 MA's), (Start: 42 @37200 has 5 MA's), (Start: 47 @37209 has 57 MA's), (60,  
37314), (65, 37377), (69, 37407), (84, 37485), (87, 37500), (89, 37506),

Gene: Sulley\_44 Start: 35383, Stop: 35643, Start Num: 38

Candidate Starts for Sulley\_44:

(Start: 30 @35362 has 15 MA's), (Start: 38 @35383 has 7 MA's), (Start: 39 @35386 has 29 MA's),  
(Start: 47 @35404 has 57 MA's), (Start: 52 @35446 has 16 MA's), (54, 35458), (56, 35491), (63,  
35557), (65, 35572), (72, 35620),

Gene: Sunflower1121\_50 Start: 36356, Stop: 36592, Start Num: 47

Candidate Starts for Sunflower1121\_50:

(Start: 47 @36356 has 57 MA's), (53, 36407), (61, 36476), (65, 36524), (68, 36536),

Gene: Syra333\_49 Start: 36023, Stop: 36259, Start Num: 47

Candidate Starts for Syra333\_49:

(Start: 47 @36023 has 57 MA's), (53, 36074), (61, 36143), (68, 36203),

Gene: TClif\_48 Start: 36322, Stop: 36570, Start Num: 47



Candidate Starts for TClif\_48:

(Start: 47 @36322 has 57 MA's), (56, 36409), (63, 36475), (65, 36490), (69, 36520),

Gene: TM4\_42 Start: 31544, Stop: 31900, Start Num: 30

Candidate Starts for TM4\_42:

(Start: 30 @31544 has 15 MA's), (32, 31547), (Start: 41 @31571 has 5 MA's), (Start: 42 @31574 has 5 MA's), (Start: 47 @31583 has 57 MA's), (60, 31688), (65, 31751), (69, 31781), (80, 31832), (84, 31859), (89, 31889),

Gene: Tachez\_44 Start: 35101, Stop: 35361, Start Num: 38

Candidate Starts for Tachez\_44:

(Start: 30 @35080 has 15 MA's), (Start: 38 @35101 has 7 MA's), (Start: 39 @35104 has 29 MA's), (Start: 47 @35122 has 57 MA's), (50, 35143), (Start: 52 @35164 has 16 MA's), (54, 35176), (56, 35209), (63, 35275), (65, 35290), (72, 35338),

Gene: Taquito\_48 Start: 36416, Stop: 36664, Start Num: 44

Candidate Starts for Taquito\_48:

(13, 36320), (Start: 44 @36416 has 18 MA's), (65, 36587), (66, 36590),

Gene: Thyatira\_44 Start: 36765, Stop: 37151, Start Num: 15

Candidate Starts for Thyatira\_44:

(Start: 15 @36765 has 12 MA's), (Start: 25 @36804 has 10 MA's), (68, 37038), (69, 37056), (71, 37071), (83, 37131),

Gene: Tierra\_47 Start: 35905, Stop: 36141, Start Num: 47

Candidate Starts for Tierra\_47:

(Start: 47 @35905 has 57 MA's), (53, 35956), (54, 35959), (61, 36025),

Gene: TiniBug\_45 Start: 36052, Stop: 36291, Start Num: 47

Candidate Starts for TiniBug\_45:

(6, 35851), (7, 35857), (8, 35872), (14, 35956), (20, 35980), (Start: 47 @36052 has 57 MA's), (Start: 52 @36094 has 16 MA's), (54, 36106), (63, 36205), (65, 36220),

Gene: Tiri\_45 Start: 35452, Stop: 35691, Start Num: 47

Candidate Starts for Tiri\_45:

(6, 35251), (7, 35257), (8, 35272), (14, 35356), (20, 35380), (Start: 29 @35404 has 1 MA's), (Start: 47 @35452 has 57 MA's), (Start: 52 @35494 has 16 MA's), (54, 35506), (56, 35539), (63, 35605), (65, 35620), (72, 35668),

Gene: Topper\_44 Start: 35259, Stop: 35516, Start Num: 39

Candidate Starts for Topper\_44:

(Start: 30 @35235 has 15 MA's), (Start: 38 @35256 has 7 MA's), (Start: 39 @35259 has 29 MA's), (Start: 47 @35277 has 57 MA's), (50, 35298), (Start: 52 @35319 has 16 MA's), (54, 35331), (56, 35364), (63, 35430), (65, 35445), (72, 35493),

Gene: Tourach\_41 Start: 34425, Stop: 34712, Start Num: 40

Candidate Starts for Tourach\_41:

(19, 34365), (Start: 40 @34425 has 31 MA's), (Start: 52 @34482 has 16 MA's), (61, 34560), (64, 34602), (65, 34608), (68, 34620),

Gene: TreyKay\_45 Start: 35343, Stop: 35582, Start Num: 47

Candidate Starts for TreyKay\_45:

(6, 35142), (7, 35148), (8, 35163), (14, 35247), (20, 35271), (Start: 47 @35343 has 57 MA's), (50, 35364), (Start: 52 @35385 has 16 MA's), (54, 35397), (56, 35430), (63, 35496), (65, 35511),

Gene: TriFive\_39 Start: 34655, Stop: 34954, Start Num: 40

Candidate Starts for TriFive\_39:

(Start: 40 @34655 has 31 MA's), (55, 34742), (65, 34838), (68, 34850),

Gene: TruffulaTree\_44 Start: 35138, Stop: 35395, Start Num: 39

Candidate Starts for TruffulaTree\_44:

(Start: 30 @35114 has 15 MA's), (Start: 38 @35135 has 7 MA's), (Start: 39 @35138 has 29 MA's), (Start: 47 @35156 has 57 MA's), (50, 35177), (Start: 52 @35198 has 16 MA's), (54, 35210), (56, 35243), (63, 35309), (65, 35324), (72, 35372),

Gene: Twitch\_44 Start: 35261, Stop: 35518, Start Num: 39

Candidate Starts for Twitch\_44:

(Start: 30 @35237 has 15 MA's), (Start: 38 @35258 has 7 MA's), (Start: 39 @35261 has 29 MA's), (Start: 47 @35279 has 57 MA's), (50, 35300), (Start: 52 @35321 has 16 MA's), (54, 35333), (56, 35366), (63, 35432), (65, 35447), (72, 35495),

Gene: Tyson\_38 Start: 33044, Stop: 33346, Start Num: 40

Candidate Starts for Tyson\_38:

(Start: 28 @33008 has 5 MA's), (Start: 40 @33044 has 31 MA's), (61, 33179), (65, 33227), (67, 33236), (68, 33239), (69, 33257), (70, 33263), (80, 33308),

Gene: UPIE\_39 Start: 33006, Stop: 33329, Start Num: 28

Candidate Starts for UPIE\_39:

(Start: 28 @33006 has 5 MA's), (Start: 40 @33042 has 31 MA's), (60, 33162), (61, 33177), (64, 33219), (65, 33225), (68, 33237), (69, 33255), (70, 33261), (85, 33324),

Gene: Underpass\_41 Start: 34468, Stop: 34698, Start Num: 52

Candidate Starts for Underpass\_41:

(Start: 34 @34393 has 9 MA's), (Start: 36 @34399 has 4 MA's), (Start: 40 @34411 has 31 MA's), (Start: 52 @34468 has 16 MA's), (64, 34588), (65, 34594), (68, 34606), (84, 34687),

Gene: Urkel\_45 Start: 36056, Stop: 36295, Start Num: 47

Candidate Starts for Urkel\_45:

(6, 35855), (7, 35861), (8, 35876), (14, 35960), (20, 35984), (Start: 47 @36056 has 57 MA's), (Start: 52 @36098 has 16 MA's), (54, 36110), (56, 36143), (63, 36209),

Gene: Validus\_48 Start: 35897, Stop: 36190, Start Num: 28

Candidate Starts for Validus\_48:

(Start: 28 @35897 has 5 MA's), (Start: 47 @35945 has 57 MA's), (53, 35996), (54, 35999), (65, 36113), (69, 36143), (74, 36167),

Gene: Veliki\_44 Start: 35178, Stop: 35435, Start Num: 39

Candidate Starts for Veliki\_44:

(Start: 30 @35154 has 15 MA's), (Start: 38 @35175 has 7 MA's), (Start: 39 @35178 has 29 MA's), (Start: 47 @35196 has 57 MA's), (50, 35217), (Start: 52 @35238 has 16 MA's), (54, 35250), (56, 35283), (63, 35349), (65, 35364), (72, 35412),

Gene: Vetric\_41 Start: 34417, Stop: 34704, Start Num: 40

Candidate Starts for Vetric\_41:

(Start: 34 @34399 has 9 MA's), (Start: 36 @34405 has 4 MA's), (Start: 40 @34417 has 31 MA's),  
(Start: 52 @34474 has 16 MA's), (64, 34594), (65, 34600), (68, 34612), (84, 34693),

Gene: Wamburgexpress\_39 Start: 33057, Stop: 33344, Start Num: 40

Candidate Starts for Wamburgexpress\_39:

(Start: 28 @33021 has 5 MA's), (Start: 40 @33057 has 31 MA's), (60, 33177), (61, 33192), (64, 33234),  
(65, 33240), (68, 33252), (69, 33270), (70, 33276), (85, 33339),

Gene: Waterfoul\_43 Start: 34659, Stop: 35045, Start Num: 15

Candidate Starts for Waterfoul\_43:

(Start: 15 @34659 has 12 MA's), (Start: 25 @34698 has 10 MA's), (68, 34932), (69, 34950), (71,  
34965), (83, 35025),

Gene: Whirlwind\_40 Start: 34375, Stop: 34713, Start Num: 26

Candidate Starts for Whirlwind\_40:

(Start: 26 @34375 has 4 MA's), (Start: 40 @34414 has 31 MA's), (55, 34501), (58, 34525), (65, 34597),  
(68, 34609), (80, 34678),

Gene: Wigglewobble\_41 Start: 34425, Stop: 34730, Start Num: 34

Candidate Starts for Wigglewobble\_41:

(Start: 34 @34425 has 9 MA's), (Start: 36 @34431 has 4 MA's), (Start: 40 @34443 has 31 MA's),  
(Start: 52 @34500 has 16 MA's), (64, 34620), (65, 34626), (68, 34638), (77, 34692), (84, 34719),

Gene: Wilder\_41 Start: 34473, Stop: 34703, Start Num: 52

Candidate Starts for Wilder\_41:

(Start: 34 @34398 has 9 MA's), (Start: 36 @34404 has 4 MA's), (Start: 40 @34416 has 31 MA's),  
(Start: 52 @34473 has 16 MA's), (64, 34593), (65, 34599), (68, 34611), (77, 34665), (84, 34692),

Gene: Winky\_41 Start: 34392, Stop: 34697, Start Num: 34

Candidate Starts for Winky\_41:

(Start: 34 @34392 has 9 MA's), (Start: 36 @34398 has 4 MA's), (Start: 40 @34410 has 31 MA's),  
(Start: 52 @34467 has 16 MA's), (64, 34587), (65, 34593), (68, 34605), (84, 34686),

Gene: Wintermute\_48 Start: 36318, Stop: 36566, Start Num: 44

Candidate Starts for Wintermute\_48:

(13, 36222), (23, 36258), (Start: 44 @36318 has 18 MA's), (65, 36489), (66, 36492),

Gene: Wyatt2\_39 Start: 33043, Stop: 33345, Start Num: 40

Candidate Starts for Wyatt2\_39:

(Start: 28 @33007 has 5 MA's), (Start: 40 @33043 has 31 MA's), (61, 33178), (65, 33226), (67, 33235),  
(68, 33238), (69, 33256), (70, 33262), (80, 33307),

Gene: Ximenita\_50 Start: 36194, Stop: 36445, Start Num: 39

Candidate Starts for Ximenita\_50:

(27, 36161), (Start: 38 @36191 has 7 MA's), (Start: 39 @36194 has 29 MA's), (Start: 47 @36209 has  
57 MA's), (54, 36263), (61, 36329), (65, 36377), (68, 36389),

Gene: Y10\_47 Start: 36237, Stop: 36485, Start Num: 44

Candidate Starts for Y10\_47:

(Start: 44 @36237 has 18 MA's), (65, 36408), (66, 36411),

Gene: Y2\_47 Start: 36237, Stop: 36485, Start Num: 44

Candidate Starts for Y2\_47:

(Start: 44 @36237 has 18 MA's), (65, 36408), (66, 36411),

Gene: YoureAdopted\_43 Start: 35343, Stop: 35600, Start Num: 39

Candidate Starts for YoureAdopted\_43:

(Start: 30 @35319 has 15 MA's), (Start: 38 @35340 has 7 MA's), (Start: 39 @35343 has 29 MA's),  
(Start: 47 @35361 has 57 MA's), (50, 35382), (Start: 52 @35403 has 16 MA's), (54, 35415), (56,  
35448), (63, 35514), (65, 35529), (72, 35577),

Gene: Yuna\_50 Start: 36971, Stop: 37204, Start Num: 47

Candidate Starts for Yuna\_50:

(Start: 47 @36971 has 57 MA's), (61, 37091), (65, 37139), (68, 37151),

Gene: Zabiza\_39 Start: 31425, Stop: 31706, Start Num: 30

Candidate Starts for Zabiza\_39:

(Start: 30 @31425 has 15 MA's), (Start: 38 @31446 has 7 MA's), (Start: 39 @31449 has 29 MA's),  
(Start: 47 @31467 has 57 MA's), (50, 31488), (Start: 52 @31509 has 16 MA's), (54, 31521), (56,  
31554), (63, 31620), (65, 31635), (72, 31683),

Gene: Zakai\_41 Start: 34725, Stop: 34955, Start Num: 52

Candidate Starts for Zakai\_41:

(Start: 34 @34650 has 9 MA's), (Start: 36 @34656 has 4 MA's), (Start: 40 @34668 has 31 MA's),  
(Start: 52 @34725 has 16 MA's), (64, 34845), (65, 34851), (68, 34863), (84, 34944),

Gene: Zaria\_39 Start: 33058, Stop: 33360, Start Num: 40

Candidate Starts for Zaria\_39:

(Start: 28 @33022 has 5 MA's), (Start: 40 @33058 has 31 MA's), (61, 33193), (65, 33241), (67, 33250),  
(68, 33253), (69, 33271), (70, 33277), (80, 33322),

Gene: Zavala\_45 Start: 35438, Stop: 35677, Start Num: 47

Candidate Starts for Zavala\_45:

(Start: 38 @35417 has 7 MA's), (Start: 39 @35420 has 29 MA's), (Start: 47 @35438 has 57 MA's), (50,  
35459), (Start: 52 @35480 has 16 MA's), (54, 35492), (56, 35525), (63, 35591), (65, 35606), (72,  
35654),

Gene: ZoeJ\_46 Start: 36666, Stop: 36992, Start Num: 42

Candidate Starts for ZoeJ\_46:

(23, 36615), (Start: 41 @36663 has 5 MA's), (Start: 42 @36666 has 5 MA's), (Start: 47 @36675 has 57  
MA's), (60, 36780), (65, 36843), (69, 36873), (84, 36951), (89, 36981),