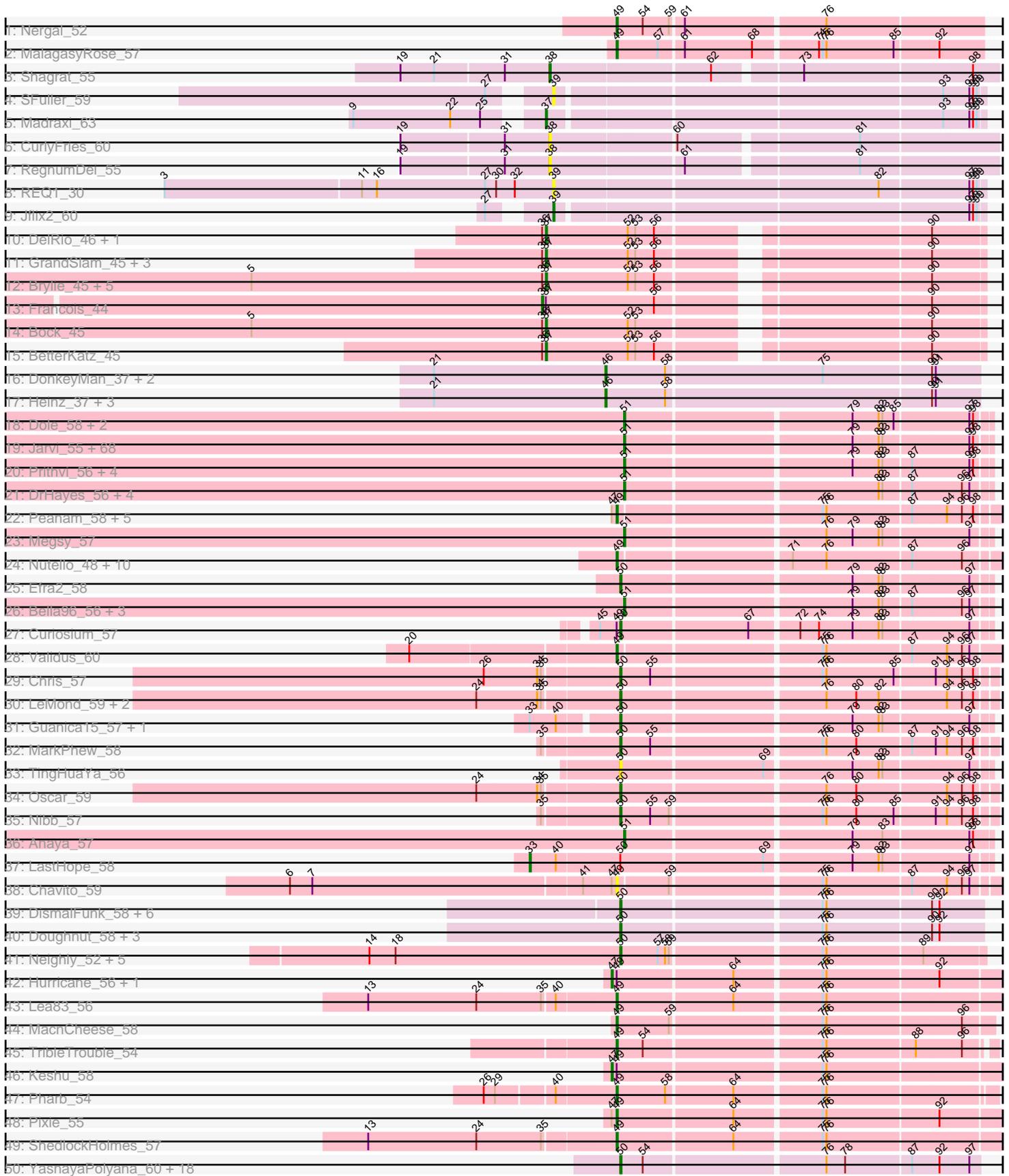


Pham 290780





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 290780 Report

This analysis was run 03/28/26 on database version 641.

Pham number 290780 has 288 members, 31 are drafts.

Phages represented in each track:

- Track 1 : Nergal\_52
- Track 2 : MalagasyRose\_57
- Track 3 : Shagrat\_55
- Track 4 : SFuller\_59
- Track 5 : Madraxi\_63
- Track 6 : CurlyFries\_60
- Track 7 : RegnumDei\_55
- Track 8 : REQ1\_30
- Track 9 : Jflix2\_60
- Track 10 : DelRio\_46, Pimento\_46
- Track 11 : GrandSlam\_45, Hamood\_45, Ayotoya\_45, Chop\_45
- Track 12 : Brylie\_45, NancyRae\_45, Nadeem\_45, WheatThin\_45, Mulch\_45, Parada\_45
- Track 13 : Francois\_44
- Track 14 : Bock\_45
- Track 15 : BetterKatz\_45
- Track 16 : DonkeyMan\_37, Reyja\_37, Tarzan\_37
- Track 17 : Heinz\_37, Hibiscus\_38, Jojo24\_36, Santhid\_36
- Track 18 : Dole\_58, Illumine\_58, Devera\_60
- Track 19 : Jarvi\_55, JAWS\_55, Peel\_55, Rosmarinus\_55, CREW\_55, CheetoDust\_54, Geraldini\_58, Capricorn\_55, Topper\_55, Boiii\_55, Ageofdapage\_58, TruffulaTree\_55, Dalmuri\_55, MacKat\_50, ShiaSurprise\_56, BGlluviae\_55, Asayake\_55, Hyperbowlee\_55, Tiri\_56, Apocalypse\_58, Piatt\_55, Jeckyll\_55, Bern\_56, AlishaPH\_55, ActinUp\_55, Atiba\_56, BEEEST\_55, BaghaKamala\_54, Zavala\_57, Slimphazie\_55, Inky\_55, Pokerus\_54, Lunahalos\_55, Clipper\_58, Blizzard\_55, CallaLilly\_55, Adonis\_55, Beezoo\_57, Belladonna\_55, Adephagia\_55, YoureAdopted\_54, Durfee\_55, Rapunzel97\_56, Angelica\_55, Tachez\_55, Mynx\_56, Homura\_55, Veliki\_56, CrimD\_55, Ramen\_56, Padpat\_57, Spock\_55, Zabiza\_50, Twitch\_55, MeaningOfLife\_56, HedwigODU\_55, Ganymede\_56, Deby\_55, Emerson\_56, QuincyRose\_54, BarrelRoll\_55, CaseJules\_57, Sulley\_55, Llorens\_55, Joy99\_55, Padfoot\_55, Jayhawk\_56, Stinson\_56, Murucutumbu\_56
- Track 20 : Prithvi\_56, LaterM\_56, LindNT\_54, TaiwanKao\_57, TreyKay\_56
- Track 21 : DrHayes\_56, Anma\_57, TiniBug\_56, Urkel\_56, SamuelLPlaqson\_56
- Track 22 : Peanam\_58, Shaobing\_58, Dartin\_58, Richo\_58, McMater\_58, Niklas\_58
- Track 23 : Megsy\_57
- Track 24 : Nutello\_48, Teejan\_50, Amelie\_48, LilPharaoh\_48, Nikao\_51, Torres\_51, SgtBeansprout\_48, Biglebops\_48, Enkosi\_50, Mdavu\_49, Trice\_48

- Track 25 : Efra2\_58
- Track 26 : Bella96\_56, Pisa4\_49, DartGoblin\_58, Pisa1\_55
- Track 27 : Curiosium\_57
- Track 28 : Validus\_60
- Track 29 : Chris\_57
- Track 30 : LeMond\_59, Scarlett\_59, KiSi\_59
- Track 31 : Guanica15\_57, Yunkel11\_57
- Track 32 : MarkPhew\_58
- Track 33 : TingHuaYa\_56
- Track 34 : Oscar\_59
- Track 35 : Nibb\_57
- Track 36 : Anaya\_57
- Track 37 : LastHope\_58
- Track 38 : Chavito\_59
- Track 39 : DismalFunk\_58, Findley\_58, DismalStressor\_58, ZoeJ\_57, Strobilo\_58, Marcoliusprime\_58, Milly\_58
- Track 40 : Doughnut\_58, Mufasa\_58, TM4\_54, BoostSeason\_58
- Track 41 : Neighly\_52, Larva\_51, Dadosky\_52, AlleyCat\_52, Edugator\_49, Psycho\_50
- Track 42 : Hurricane\_56, TBond007\_54
- Track 43 : Lea83\_56
- Track 44 : MacnCheese\_58
- Track 45 : TribbleTrouble\_54
- Track 46 : Keshu\_58
- Track 47 : Pharb\_54
- Track 48 : Pixie\_55
- Track 49 : ShedlockHolmes\_57
- Track 50 : YasnayaPolyana\_60, Lebo14\_59, Qhanda\_62, Eponine\_62, SamScheppers\_58, Fionnbharth\_60, DanSyl44\_63, Ruthiejr\_61, Slarp\_60, JF1\_60, Taquito\_59, Cheetobro\_60, Wintermute\_60, Chancellor\_60, OmniCritical\_59, Y10\_59, Mitti\_60, Y2\_59, Juliette\_62
- Track 51 : Bobquesha\_62, Patt\_57, Reptar3000\_58, MissDaisy\_58
- Track 52 : Malthus\_61, Kraw\_60
- Track 53 : Heftyboy\_50, Waterfoul\_51, SoSeph\_50
- Track 54 : Gengar\_50, Guillsminger\_51, Leston\_50, OkiRoe\_50, Paola\_50, Miryou\_53
- Track 55 : Agent47\_51, LilDirt\_48, ViviJ\_50, Collard\_49, InvictusManeo\_49, DoubleChamp\_48
- Track 56 : BananenDer11\_48
- Track 57 : Feyre\_51
- Track 58 : Kratio\_48
- Track 59 : Thyatira\_53
- Track 60 : Rando14\_52
- Track 61 : Omnicron\_53
- Track 62 : Applecrisp\_54, Fefferhead\_55
- Track 63 : Yuna\_61
- Track 64 : Bryler\_59, Unicorn\_57, Tierra\_59, PhelpsODU\_57, Cain\_59, Phrank\_59
- Track 65 : Lavahound\_57, Amgine\_56
- Track 66 : Ximenita\_62, Shadow1\_61, Syra333\_61, Sunflower1121\_62
- Track 67 : Ekdilam\_55
- Track 68 : November\_55
- Track 69 : Ellie\_53
- Track 70 : Krueger\_62

- Track 71 : SirPhilip\_57
- Track 72 : DarthP\_57, Hammy\_57, Amohnition\_57
- Track 73 : TClif\_58
- Track 74 : Tigress9\_64
- Track 75 : Marshawn\_57
- Track 76 : Aminay\_58
- Track 77 : Boilgate\_52
- Track 78 : Catdawg\_11, Dylan\_12, Zakhe101\_13, JangDynasty\_11, FoulBall\_11, Blessica\_11, Ashwin\_13, Idergollasper\_11, Bora\_12, Imara\_12, KingPhillip3\_11, Familton\_12, YungJamal\_13, Vagabond\_12, Shida\_12, Corndog\_13, Wildflower\_12, Ryadel\_14, Wogge42\_12, Smooch\_13, Firecracker\_12, Zebo\_11, TelAviv\_11, Winget\_12, SchoolBus\_11
- Track 79 : Alkhayr\_12, Mori\_12, Murai\_12, YoyoKar\_12, Schuy\_12, NiebruSaylor\_12, Vorrps\_12
- Track 80 : Krili\_12, MadKillah\_12
- Track 81 : TinyDot\_41
- Track 82 : GMA4\_38
- Track 83 : TPA4\_45

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

The start number called the most often in the published annotations is 51, it was called in 83 of the 257 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- ActinUp\_55, Adephegia\_55, Adonis\_55, Ageofdapage\_58, AlishaPH\_55, Anaya\_57, Angelica\_55, Anma\_57, Apocalypse\_58, Asayake\_55, Atiba\_56, BEEST\_55, BGlluviae\_55, BaghaKamala\_54, BarrelRoll\_55, Beezoo\_57, Bella96\_56, Belladonna\_55, Bern\_56, Blizzard\_55, Boiiii\_55, CREW\_55, CallaLilly\_55, Capricorn\_55, CaseJules\_57, CheetoDust\_54, Clipper\_58, CrimD\_55, Dalmuri\_55, DartGoblin\_58, Deby\_55, Devera\_60, Dole\_58, DrHayes\_56, Durfee\_55, Emerson\_56, Ganymede\_56, Geraldini\_58, HedwigODU\_55, Homura\_55, Hyperbowlee\_55, Illumine\_58, Inky\_55, JAWS\_55, Jarvi\_55, Jayhawk\_56, Jeckyll\_55, Joy99\_55, LaterM\_56, LindNT\_54, Llorens\_55, Lunahalos\_55, MacKat\_50, MeaningOfLife\_56, Megsy\_57, Murucutumbu\_56, Mynx\_56, Padfoot\_55, Padpat\_57, Peel\_55, Piatt\_55, Pisa1\_55, Pisa4\_49, Pokerus\_54, Prithvi\_56, QuincyRose\_54, Ramen\_56, Rapunzel97\_56, Rosmarinus\_55, SamuelLPlaqson\_56, ShiaSurprise\_56, Slimphazie\_55, Spock\_55, Stinson\_56, Sulley\_55, Tachez\_55, TaiwanKao\_57, TiniBug\_56, Tiri\_56, Topper\_55, TreyKay\_56, TruffulaTree\_55, Twitch\_55, Urkel\_56, Veliki\_56, YoureAdopted\_54, Zabiza\_50, Zavala\_57,

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

- 

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

- Agent47\_51, Alkhayr\_12, AlleyCat\_52, Amelie\_48, Amgine\_56, Aminay\_58, Amohnition\_57, Applecrisp\_54, Ashwin\_13, Ayotoya\_45, BananenDer11\_48, BetterKatz\_45, Biglebops\_48, Blessica\_11, Bobquesha\_62, Bock\_45, Boilgate\_52, BoostSeason\_58, Bora\_12, Bryler\_59, Brylie\_45, Cain\_59, Catdawg\_11, Chancellor\_60, Chavito\_59, Cheetobro\_60, Chop\_45, Chris\_57, Collard\_49,

Corndog\_13, Curiosium\_57, CurlyFries\_60, Dadosky\_52, DanSyl44\_63, DarthP\_57, Dartin\_58, DelRio\_46, DismalFunk\_58, DismalStressor\_58, DonkeyMan\_37, DoubleChamp\_48, Doughnut\_58, Dylan\_12, Edugator\_49, Efra2\_58, Ekdilam\_55, Ellie\_53, Enkosi\_50, Eponine\_62, Familton\_12, Fefferhead\_55, Feyre\_51, Findley\_58, Fionnbharth\_60, Firecracker\_12, FoulBall\_11, Francois\_44, GMA4\_38, Gengar\_50, GrandSlam\_45, Guanica15\_57, Guillsminger\_51, Hammy\_57, Hamood\_45, Heftyboy\_50, Heinz\_37, Hibiscus\_38, Hurricane\_56, Idergollasper\_11, Imara\_12, InvictusManeo\_49, JF1\_60, JangDynasty\_11, Jflix2\_60, Jojo24\_36, Juliette\_62, Keshu\_58, KiSi\_59, KingPhillip3\_11, Kratio\_48, Kraw\_60, Krili\_12, Krueger\_62, Larva\_51, LastHope\_58, Lavahound\_57, LeMond\_59, Lea83\_56, Lebo14\_59, Leston\_50, LilDirt\_48, LilPharaoh\_48, MacnCheese\_58, MadKillah\_12, Madraxi\_63, MalagasyRose\_57, Malthus\_61, Marcoliusprime\_58, MarkPhew\_58, Marshawn\_57, McMater\_58, Mdavu\_49, Milly\_58, Miryou\_53, MissDaisy\_58, Mitti\_60, Mori\_12, Mufasa\_58, Mulch\_45, Murai\_12, Nadeem\_45, NancyRae\_45, Neighly\_52, Nergal\_52, Nibb\_57, NiebruSaylor\_12, Nikao\_51, Niklas\_58, November\_55, Nutello\_48, OkiRoe\_50, OmniCritical\_59, Omnicron\_53, Oscar\_59, Paola\_50, Parada\_45, Patt\_57, Peanam\_58, Pharb\_54, PhelpsODU\_57, Phrank\_59, Pimento\_46, Pixie\_55, Psycho\_50, Qhanda\_62, REQ1\_30, Rando14\_52, RegnumDei\_55, Reptar3000\_58, Reyja\_37, Richo\_58, Ruthiejr\_61, Ryadel\_14, SFuller\_59, SamScheppers\_58, Santhid\_36, Scarlett\_59, SchoolBus\_11, Schuy\_12, SgtBeansprout\_48, Shadow1\_61, Shagrat\_55, Shaobing\_58, ShedlockHolmes\_57, Shida\_12, SirPhilip\_57, Slarp\_60, Smooch\_13, SoSeph\_50, Strobilo\_58, Sunflower1121\_62, Syra333\_61, TBond007\_54, TClif\_58, TM4\_54, TPA4\_45, Taquito\_59, Tarzan\_37, Teejan\_50, TelAviv\_11, Thyatira\_53, Tierra\_59, Tigress9\_64, TingHuaYa\_56, TinyDot\_41, Torres\_51, TribbleTrouble\_54, Trice\_48, Unicorn\_57, Vagabond\_12, Validus\_60, ViviJ\_50, Vorrrps\_12, Waterfoul\_51, WheatThin\_45, Wildflower\_12, Winget\_12, Wintermute\_60, Wogge42\_12, Ximenita\_62, Y10\_59, Y2\_59, YasnayaPolyana\_60, YoyoKar\_12, Yuna\_61, YungJamal\_13, Yunkel11\_57, Zakhe101\_13, Zebo\_11, ZoeJ\_57,

### Summary by start number:

#### Start 33:

- Found in 3 of 288 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 1 of 257
- Called 33.3% of time when present
- Phage (with cluster) where this start called: LastHope\_58 (K1),

#### Start 36:

- Found in 15 of 288 ( 5.2% ) of genes in pham
- Manual Annotations of this start: 1 of 257
- Called 6.7% of time when present
- Phage (with cluster) where this start called: Francois\_44 (DI),

#### Start 37:

- Found in 17 of 288 ( 5.9% ) of genes in pham
- Manual Annotations of this start: 15 of 257
- Called 94.1% of time when present
- Phage (with cluster) where this start called: Ayotoya\_45 (DI), BetterKatz\_45 (DI), Bock\_45 (DI), Brylie\_45 (DI), Chop\_45 (DI), DelRio\_46 (DI), GrandSlam\_45 (DI), Hamood\_45 (DI), Madraxi\_63 (CF), Mulch\_45 (DI), Nadeem\_45 (DI), NancyRae\_45 (DI), Parada\_45 (DI), Pimento\_46 (DI), TPA4\_45 (singleton), WheatThin\_45 (DI),

Start 38:

- Found in 3 of 288 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 1 of 257
- Called 100.0% of time when present
- Phage (with cluster) where this start called: CurlyFries\_60 (CF), RegnumDei\_55 (CF), Shagrat\_55 (CF),

Start 39:

- Found in 3 of 288 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 1 of 257
- Called 100.0% of time when present
- Phage (with cluster) where this start called: JfliX2\_60 (CF), REQ1\_30 (CF), SFuller\_59 (CF),

Start 45:

- Found in 2 of 288 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 257
- Called 50.0% of time when present
- Phage (with cluster) where this start called: TinyDot\_41 (singleton),

Start 46:

- Found in 7 of 288 ( 2.4% ) of genes in pham
- Manual Annotations of this start: 7 of 257
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DonkeyMan\_37 (DY), Heinz\_37 (DY), Hibiscus\_38 (DY), Jojo24\_36 (DY), Reyja\_37 (DY), Santhid\_36 (DY), Tarzan\_37 (DY),

Start 47:

- Found in 11 of 288 ( 3.8% ) of genes in pham
- Manual Annotations of this start: 3 of 257
- Called 27.3% of time when present
- Phage (with cluster) where this start called: Hurricane\_56 (K3), Keshu\_58 (K3), TBond007\_54 (K3),

Start 48:

- Found in 34 of 288 ( 11.8% ) of genes in pham
- Manual Annotations of this start: 30 of 257
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Alkhayr\_12 (O), Ashwin\_13 (O), Blessica\_11 (O), Bora\_12 (O), Catdawn\_11 (O), Corndog\_13 (O), Dylan\_12 (O), Familton\_12 (O), Firecracker\_12 (O), FoulBall\_11 (O), Idergollasper\_11 (O), Imara\_12 (O), JangDynasty\_11 (O), KingPhillip3\_11 (O), Krili\_12 (O), MadKillah\_12 (O), Mori\_12 (O), Murai\_12 (O), NiebruSaylor\_12 (O), Ryadel\_14 (O), SchoolBus\_11 (O), Schuy\_12 (O), Shida\_12 (O), Smooch\_13 (O), TelAviv\_11 (O), Vagabond\_12 (O), Vorrps\_12 (O), Wildflower\_12 (O), Winget\_12 (O), Wogge42\_12 (O), YoyoKar\_12 (O), YungJamal\_13 (O), Zakhe101\_13 (O), Zebo\_11 (O),

Start 49:

- Found in 57 of 288 ( 19.8% ) of genes in pham
- Manual Annotations of this start: 44 of 257
- Called 93.0% of time when present

- Phage (with cluster) where this start called: Amelie\_48 (K1), Amgine\_56 (K6), Amohnition\_57 (K6), Applecrisp\_54 (K6), Biglebops\_48 (K1), Bryler\_59 (K6), Cain\_59 (K6), Chavito\_59 (K1), DarthP\_57 (K6), Dartin\_58 (K1), Ekdilam\_55 (K6), Ellie\_53 (K6), Enkosi\_50 (K1), Fefferhead\_55 (K6), GMA4\_38 (singleton), Hammy\_57 (K6), Krueger\_62 (K6), Lavahound\_57 (K6), Lea83\_56 (K3), LilPharaoh\_48 (K1), MacnCheese\_58 (K3), MalagasyRose\_57 (AG), Marshawn\_57 (K6), McMater\_58 (K1), Mdavu\_49 (K1), Nergal\_52 (AG), Nikao\_51 (K1), Niklas\_58 (K1), November\_55 (K6), Nutello\_48 (K1), Peanam\_58 (K1), Pharb\_54 (K3), PhelpsODU\_57 (K6), Phrank\_59 (K6), Pixie\_55 (K3), Richo\_58 (K1), SgtBeansprout\_48 (K1), Shadow1\_61 (K6), Shaobing\_58 (K1), ShedlockHolmes\_57 (K3), SirPhilip\_57 (K6), Sunflower1121\_62 (K6), Syra333\_61 (K6), TClif\_58 (K6), Teejan\_50 (K1), Tierra\_59 (K6), Tigress9\_64 (K6), Torres\_51 (K1), TribbleTrouble\_54 (K3), Trice\_48 (K1), Unicorn\_57 (K6), Validus\_60 (K1), Ximenita\_62 (K6),

Start 50:

- Found in 79 of 288 ( 27.4% ) of genes in pham
- Manual Annotations of this start: 70 of 257
- Called 97.5% of time when present
- Phage (with cluster) where this start called: Agent47\_51 (K5), AlleyCat\_52 (K5), Aminay\_58 (K7), Bobquesha\_62 (K4), Boilgate\_52 (K8), BoostSeason\_58 (K2), Chancellor\_60 (K4), Cheetobro\_60 (K4), Chris\_57 (K1), Collard\_49 (K5), Curiosium\_57 (K1), Dadosky\_52 (K5), DanSyl44\_63 (K4), DismalFunk\_58 (K2), DismalStressor\_58 (K2), DoubleChamp\_48 (K5), Doughnut\_58 (K2), Edugator\_49 (K5), Efra2\_58 (K1), Eponine\_62 (K4), Feyre\_51 (K5), Findley\_58 (K2), Fionnbharth\_60 (K4), Gengar\_50 (K5), Guanica15\_57 (K1), Guillsminger\_51 (K5), Heftyboy\_50 (K5), InvictusManeo\_49 (K5), JF1\_60 (K4), Juliette\_62 (K4), KiSi\_59 (K1), Kratio\_48 (K5), Kraw\_60 (K4), Larva\_51 (K5), LeMond\_59 (K1), Lebo14\_59 (K4), Leston\_50 (K5), LilDirt\_48 (K5), Malthus\_61 (K4), Marcoliusprime\_58 (K2), MarkPhew\_58 (K1), Milly\_58 (K2), Miryou\_53 (K5), MissDaisy\_58 (K4), Mitti\_60 (K4), Mufasa\_58 (K2), Neighly\_52 (K3), Nibb\_57 (K1), OkiRoe\_50 (K5), OmniCritical\_59 (K4), Omnicron\_53 (K5), Oscar\_59 (K1), Paola\_50 (K5), Patt\_57 (K4), Psycho\_50 (K5), Qhanda\_62 (K4), Rando14\_52 (K5), Reptar3000\_58 (K4), Ruthiejr\_61 (K4), SamScheppers\_58 (K4), Scarlett\_59 (K1), Slarp\_60 (K4), SoSeph\_50 (K5), Strobilo\_58 (K2), TM4\_54 (K2), Taquito\_59 (K4), Thyatira\_53 (K5), TingHuaYa\_56 (K1), ViviJ\_50 (K5), Waterfoul\_51 (K5), Wintermute\_60 (K4), Y10\_59 (K4), Y2\_59 (K4), YasnayaPolyana\_60 (K4), Yuna\_61 (K6), Yunkel11\_57 (K1), ZoeJ\_57 (K2),

Start 51:

- Found in 88 of 288 ( 30.6% ) of genes in pham
- Manual Annotations of this start: 83 of 257
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ActinUp\_55 (K1), Adephegia\_55 (K1), Adonis\_55 (K1), Ageofdapage\_58 (K1), AlishaPH\_55 (K1), Anaya\_57 (K1), Angelica\_55 (K1), Anma\_57 (K1), Apocalypse\_58 (K1), Asayake\_55 (K1), Atiba\_56 (K1), BEEST\_55 (K1), BGlluviae\_55 (K1), BaghaKamala\_54 (K1), BarrelRoll\_55 (K1), Beezoo\_57 (K1), Bella96\_56 (K1), Belladonna\_55 (K1), Bern\_56 (K1), Blizzard\_55 (K1), Boiiii\_55 (K1), CREW\_55 (K1), CallaLilly\_55 (K1), Capricorn\_55 (K1), CaseJules\_57 (K1), CheetoDust\_54 (K1), Clipper\_58 (K1), CrimD\_55 (K1), Dalmuri\_55 (K1), DartGoblin\_58 (K1), Deby\_55 (K1), Devera\_60 (K1), Dole\_58 (K1), DrHayes\_56 (K1), Durfee\_55 (K1), Emerson\_56 (K1), Ganymede\_56 (K1), Geraldini\_58 (K1), HedwigODU\_55 (K1), Homura\_55 (K1), Hyperbowlee\_55 (K1), Illumine\_58 (K1), Inky\_55 (K1), JAWS\_55 (K1), Jarvi\_55 (K1), Jayhawk\_56 (K1), Jeckyll\_55 (K1), Joy99\_55 (K1), LaterM\_56 (K1), LindNT\_54 (K1), Llorens\_55 (K1),

Lunahalos\_55 (K1), MacKat\_50 (K1), MeaningOfLife\_56 (K1), Megsy\_57 (K1), Murucutumbu\_56 (K1), Mynx\_56 (K1), Padfoot\_55 (K1), Padpat\_57 (K1), Peel\_55 (K1), Piatt\_55 (K1), Pisa1\_55 (K1), Pisa4\_49 (K1), Pokerus\_54 (K1), Prithvi\_56 (K1), QuincyRose\_54 (K1), Ramen\_56 (K1), Rapunzel97\_56 (K1), Rosmarinus\_55 (K1), SamuelLPlaqson\_56 (K1), ShiaSurprise\_56 (K1), Slimphazie\_55 (K1), Spock\_55 (K1), Stinson\_56 (K1), Sulley\_55 (K1), Tachez\_55 (K1), TaiwanKao\_57 (K1), TiniBug\_56 (K1), Tiri\_56 (K1), Topper\_55 (K1), TreyKay\_56 (K1), TruffulaTree\_55 (K1), Twitch\_55 (K1), Urkel\_56 (K1), Veliki\_56 (K1), YoureAdopted\_54 (K1), Zabiza\_50 (K1), Zavala\_57 (K1),

Start 57:

- Found in 27 of 288 ( 9.4% ) of genes in pham
- No Manual Annotations of this start.
- Called 3.7% of time when present
- Phage (with cluster) where this start called: BananenDer11\_48 (K5),

### Summary by clusters:

There are 14 clusters represented in this pham: singleton, AG, DI, DY, CF, O, K3, K2, K1, K7, K6, K5, K4, K8,

Info for manual annotations of cluster AG:

- Start number 49 was manually annotated 2 times for cluster AG.

Info for manual annotations of cluster CF:

- Start number 37 was manually annotated 1 time for cluster CF.
- Start number 38 was manually annotated 1 time for cluster CF.
- Start number 39 was manually annotated 1 time for cluster CF.

Info for manual annotations of cluster DI:

- Start number 36 was manually annotated 1 time for cluster DI.
- Start number 37 was manually annotated 14 times for cluster DI.

Info for manual annotations of cluster DY:

- Start number 46 was manually annotated 7 times for cluster DY.

Info for manual annotations of cluster K1:

- Start number 33 was manually annotated 1 time for cluster K1.
- Start number 49 was manually annotated 13 times for cluster K1.
- Start number 50 was manually annotated 11 times for cluster K1.
- Start number 51 was manually annotated 83 times for cluster K1.

Info for manual annotations of cluster K2:

- Start number 50 was manually annotated 11 times for cluster K2.

Info for manual annotations of cluster K3:

- Start number 47 was manually annotated 3 times for cluster K3.
- Start number 49 was manually annotated 6 times for cluster K3.

Info for manual annotations of cluster K4:

- Start number 50 was manually annotated 22 times for cluster K4.

Info for manual annotations of cluster K5:

- Start number 50 was manually annotated 23 times for cluster K5.

Info for manual annotations of cluster K6:

- Start number 49 was manually annotated 23 times for cluster K6.
- Start number 50 was manually annotated 1 time for cluster K6.

Info for manual annotations of cluster K7:

- Start number 50 was manually annotated 1 time for cluster K7.

Info for manual annotations of cluster K8:

- Start number 50 was manually annotated 1 time for cluster K8.

Info for manual annotations of cluster O:

- Start number 48 was manually annotated 30 times for cluster O.

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

Gene: ActinUp\_55 Start: 39499, Stop: 39777, Start Num: 51

Candidate Starts for ActinUp\_55:

(Start: 51 @39499 has 83 MA's), (79, 39673), (82, 39694), (83, 39697), (97, 39763), (98, 39766),

Gene: Adephagia\_55 Start: 39499, Stop: 39777, Start Num: 51

Candidate Starts for Adephagia\_55:

(Start: 51 @39499 has 83 MA's), (79, 39673), (82, 39694), (83, 39697), (97, 39763), (98, 39766),

Gene: Adonis\_55 Start: 39743, Stop: 40021, Start Num: 51

Candidate Starts for Adonis\_55:

(Start: 51 @39743 has 83 MA's), (79, 39917), (82, 39938), (83, 39941), (97, 40007), (98, 40010),

Gene: Agent47\_51 Start: 37637, Stop: 37915, Start Num: 50

Candidate Starts for Agent47\_51:

(34, 37571), (Start: 50 @37637 has 70 MA's), (57, 37667), (59, 37676), (75, 37790), (76, 37793),

Gene: Ageofdapage\_58 Start: 40488, Stop: 40766, Start Num: 51

Candidate Starts for Ageofdapage\_58:

(Start: 51 @40488 has 83 MA's), (79, 40662), (82, 40683), (83, 40686), (97, 40752), (98, 40755),

Gene: AlishaPH\_55 Start: 39760, Stop: 40038, Start Num: 51

Candidate Starts for AlishaPH\_55:

(Start: 51 @39760 has 83 MA's), (79, 39934), (82, 39955), (83, 39958), (97, 40024), (98, 40027),

Gene: Alkhayr\_12 Start: 4795, Stop: 5082, Start Num: 48

Candidate Starts for Alkhayr\_12:

(Start: 48 @4795 has 30 MA's), (82, 4999), (97, 5068),

Gene: AlleyCat\_52 Start: 37713, Stop: 37991, Start Num: 50

Candidate Starts for AlleyCat\_52:

(14, 37512), (18, 37533), (Start: 50 @37713 has 70 MA's), (57, 37743), (58, 37749), (59, 37752), (75, 37866), (76, 37869), (89, 37944),

Gene: Amelie\_48 Start: 37745, Stop: 38032, Start Num: 49

Candidate Starts for Amelie\_48:

(Start: 49 @37745 has 44 MA's), (71, 37874), (76, 37901), (87, 37967), (96, 38006),

Gene: Amgine\_56 Start: 40809, Stop: 41099, Start Num: 49

Candidate Starts for Amgine\_56:

(1, 40365), (4, 40494), (12, 40620), (28, 40719), (Start: 49 @40809 has 44 MA's), (75, 40962), (76, 40965), (90, 41046), (96, 41070),

Gene: Aminay\_58 Start: 40476, Stop: 40751, Start Num: 50

Candidate Starts for Aminay\_58:

(Start: 50 @40476 has 70 MA's), (75, 40629), (76, 40632), (90, 40713), (97, 40743),

Gene: Amohnition\_57 Start: 40401, Stop: 40691, Start Num: 49

Candidate Starts for Amohnition\_57:

(Start: 49 @40401 has 44 MA's), (75, 40554), (76, 40557), (85, 40611),

Gene: Anaya\_57 Start: 40018, Stop: 40299, Start Num: 51

Candidate Starts for Anaya\_57:

(Start: 51 @40018 has 83 MA's), (79, 40192), (83, 40216), (97, 40282), (98, 40285),

Gene: Angelica\_55 Start: 39652, Stop: 39930, Start Num: 51

Candidate Starts for Angelica\_55:

(Start: 51 @39652 has 83 MA's), (79, 39826), (82, 39847), (83, 39850), (97, 39916), (98, 39919),

Gene: Anma\_57 Start: 40396, Stop: 40674, Start Num: 51

Candidate Starts for Anma\_57:

(Start: 51 @40396 has 83 MA's), (82, 40591), (83, 40594), (87, 40615), (96, 40654), (97, 40660),

Gene: Apocalypse\_58 Start: 40429, Stop: 40707, Start Num: 51

Candidate Starts for Apocalypse\_58:

(Start: 51 @40429 has 83 MA's), (79, 40603), (82, 40624), (83, 40627), (97, 40693), (98, 40696),

Gene: Applecrisp\_54 Start: 39946, Stop: 40236, Start Num: 49

Candidate Starts for Applecrisp\_54:

(2, 39574), (4, 39631), (12, 39757), (28, 39856), (Start: 49 @39946 has 44 MA's), (75, 40099), (76, 40102), (90, 40183), (96, 40207),

Gene: Asayake\_55 Start: 39814, Stop: 40092, Start Num: 51

Candidate Starts for Asayake\_55:

(Start: 51 @39814 has 83 MA's), (79, 39988), (82, 40009), (83, 40012), (97, 40078), (98, 40081),

Gene: Ashwin\_13 Start: 5030, Stop: 5317, Start Num: 48

Candidate Starts for Ashwin\_13:

(Start: 48 @5030 has 30 MA's), (82, 5234),

Gene: Atiba\_56 Start: 39462, Stop: 39740, Start Num: 51

Candidate Starts for Atiba\_56:

(Start: 51 @39462 has 83 MA's), (79, 39636), (82, 39657), (83, 39660), (97, 39726), (98, 39729),

Gene: Ayotoya\_45 Start: 34119, Stop: 34439, Start Num: 37

Candidate Starts for Ayotoya\_45:

(Start: 36 @34116 has 1 MA's), (Start: 37 @34119 has 15 MA's), (52, 34185), (53, 34191), (56, 34206), (90, 34398),

Gene: BEEST\_55 Start: 39814, Stop: 40092, Start Num: 51  
Candidate Starts for BEEST\_55:  
(Start: 51 @39814 has 83 MA's), (79, 39988), (82, 40009), (83, 40012), (97, 40078), (98, 40081),

Gene: BGlluviae\_55 Start: 39617, Stop: 39895, Start Num: 51  
Candidate Starts for BGlluviae\_55:  
(Start: 51 @39617 has 83 MA's), (79, 39791), (82, 39812), (83, 39815), (97, 39881), (98, 39884),

Gene: BaghaKamala\_54 Start: 38861, Stop: 39139, Start Num: 51  
Candidate Starts for BaghaKamala\_54:  
(Start: 51 @38861 has 83 MA's), (79, 39035), (82, 39056), (83, 39059), (97, 39125), (98, 39128),

Gene: BananenDer11\_48 Start: 37628, Stop: 37876, Start Num: 57  
Candidate Starts for BananenDer11\_48:  
(34, 37532), (Start: 50 @37598 has 70 MA's), (57, 37628), (59, 37637), (75, 37751), (76, 37754),

Gene: BarrelRoll\_55 Start: 39482, Stop: 39760, Start Num: 51  
Candidate Starts for BarrelRoll\_55:  
(Start: 51 @39482 has 83 MA's), (79, 39656), (82, 39677), (83, 39680), (97, 39746), (98, 39749),

Gene: Beezoo\_57 Start: 40460, Stop: 40738, Start Num: 51  
Candidate Starts for Beezoo\_57:  
(Start: 51 @40460 has 83 MA's), (79, 40634), (82, 40655), (83, 40658), (97, 40724), (98, 40727),

Gene: Bella96\_56 Start: 40241, Stop: 40519, Start Num: 51  
Candidate Starts for Bella96\_56:  
(Start: 51 @40241 has 83 MA's), (79, 40415), (82, 40436), (83, 40439), (87, 40460), (96, 40499), (97, 40505),

Gene: Belladonna\_55 Start: 39617, Stop: 39895, Start Num: 51  
Candidate Starts for Belladonna\_55:  
(Start: 51 @39617 has 83 MA's), (79, 39791), (82, 39812), (83, 39815), (97, 39881), (98, 39884),

Gene: Bern\_56 Start: 38451, Stop: 38729, Start Num: 51  
Candidate Starts for Bern\_56:  
(Start: 51 @38451 has 83 MA's), (79, 38625), (82, 38646), (83, 38649), (97, 38715), (98, 38718),

Gene: BetterKatz\_45 Start: 33644, Stop: 33964, Start Num: 37  
Candidate Starts for BetterKatz\_45:  
(Start: 36 @33641 has 1 MA's), (Start: 37 @33644 has 15 MA's), (52, 33710), (53, 33716), (56, 33731), (90, 33923),

Gene: Biglebops\_48 Start: 37745, Stop: 38032, Start Num: 49  
Candidate Starts for Biglebops\_48:  
(Start: 49 @37745 has 44 MA's), (71, 37874), (76, 37901), (87, 37967), (96, 38006),

Gene: Blessica\_11 Start: 4427, Stop: 4714, Start Num: 48  
Candidate Starts for Blessica\_11:  
(Start: 48 @4427 has 30 MA's), (82, 4631),

Gene: Blizzard\_55 Start: 39814, Stop: 40092, Start Num: 51  
Candidate Starts for Blizzard\_55:

(Start: 51 @39814 has 83 MA's), (79, 39988), (82, 40009), (83, 40012), (97, 40078), (98, 40081),

Gene: Bobquesha\_62 Start: 39304, Stop: 39579, Start Num: 50

Candidate Starts for Bobquesha\_62:

(Start: 50 @39304 has 70 MA's), (54, 39322), (76, 39460), (78, 39475), (87, 39526), (92, 39547), (97, 39571),

Gene: Bock\_45 Start: 33342, Stop: 33662, Start Num: 37

Candidate Starts for Bock\_45:

(5, 33105), (Start: 36 @33339 has 1 MA's), (Start: 37 @33342 has 15 MA's), (52, 33408), (53, 33414), (90, 33621),

Gene: Boiiii\_55 Start: 39816, Stop: 40094, Start Num: 51

Candidate Starts for Boiiii\_55:

(Start: 51 @39816 has 83 MA's), (79, 39990), (82, 40011), (83, 40014), (97, 40080), (98, 40083),

Gene: Boilgate\_52 Start: 39523, Stop: 39804, Start Num: 50

Candidate Starts for Boilgate\_52:

(Start: 50 @39523 has 70 MA's), (54, 39541), (85, 39733), (97, 39790),

Gene: BoostSeason\_58 Start: 41135, Stop: 41413, Start Num: 50

Candidate Starts for BoostSeason\_58:

(Start: 50 @41135 has 70 MA's), (75, 41288), (76, 41291), (90, 41372), (92, 41378),

Gene: Bora\_12 Start: 4828, Stop: 5115, Start Num: 48

Candidate Starts for Bora\_12:

(Start: 48 @4828 has 30 MA's), (82, 5032),

Gene: Bryler\_59 Start: 39176, Stop: 39466, Start Num: 49

Candidate Starts for Bryler\_59:

(42, 39155), (Start: 49 @39176 has 44 MA's), (90, 39413),

Gene: Brylie\_45 Start: 33389, Stop: 33709, Start Num: 37

Candidate Starts for Brylie\_45:

(5, 33152), (Start: 36 @33386 has 1 MA's), (Start: 37 @33389 has 15 MA's), (52, 33455), (53, 33461), (56, 33476), (90, 33668),

Gene: CREW\_55 Start: 39617, Stop: 39895, Start Num: 51

Candidate Starts for CREW\_55:

(Start: 51 @39617 has 83 MA's), (79, 39791), (82, 39812), (83, 39815), (97, 39881), (98, 39884),

Gene: Cain\_59 Start: 39164, Stop: 39454, Start Num: 49

Candidate Starts for Cain\_59:

(42, 39143), (Start: 49 @39164 has 44 MA's), (90, 39401),

Gene: CallaLilly\_55 Start: 39540, Stop: 39818, Start Num: 51

Candidate Starts for CallaLilly\_55:

(Start: 51 @39540 has 83 MA's), (79, 39714), (82, 39735), (83, 39738), (97, 39804), (98, 39807),

Gene: Capricorn\_55 Start: 39617, Stop: 39895, Start Num: 51

Candidate Starts for Capricorn\_55:

(Start: 51 @39617 has 83 MA's), (79, 39791), (82, 39812), (83, 39815), (97, 39881), (98, 39884),

Gene: CaseJules\_57 Start: 39814, Stop: 40092, Start Num: 51  
Candidate Starts for CaseJules\_57:  
(Start: 51 @39814 has 83 MA's), (79, 39988), (82, 40009), (83, 40012), (97, 40078), (98, 40081),

Gene: Catdawg\_11 Start: 4467, Stop: 4754, Start Num: 48  
Candidate Starts for Catdawg\_11:  
(Start: 48 @4467 has 30 MA's), (82, 4671),

Gene: Chancellor\_60 Start: 39806, Stop: 40081, Start Num: 50  
Candidate Starts for Chancellor\_60:  
(Start: 50 @39806 has 70 MA's), (54, 39824), (76, 39962), (78, 39977), (87, 40028), (92, 40049), (97, 40073),

Gene: Chavito\_59 Start: 40836, Stop: 41123, Start Num: 49  
Candidate Starts for Chavito\_59:  
(6, 40581), (7, 40599), (41, 40812), (Start: 47 @40833 has 3 MA's), (Start: 49 @40836 has 44 MA's), (59, 40875), (75, 40989), (76, 40992), (87, 41058), (94, 41085), (96, 41097), (97, 41103),

Gene: CheetoDust\_54 Start: 38905, Stop: 39183, Start Num: 51  
Candidate Starts for CheetoDust\_54:  
(Start: 51 @38905 has 83 MA's), (79, 39079), (82, 39100), (83, 39103), (97, 39169), (98, 39172),

Gene: Cheetobro\_60 Start: 39803, Stop: 40078, Start Num: 50  
Candidate Starts for Cheetobro\_60:  
(Start: 50 @39803 has 70 MA's), (54, 39821), (76, 39959), (78, 39974), (87, 40025), (92, 40046), (97, 40070),

Gene: Chop\_45 Start: 33866, Stop: 34186, Start Num: 37  
Candidate Starts for Chop\_45:  
(Start: 36 @33863 has 1 MA's), (Start: 37 @33866 has 15 MA's), (52, 33932), (53, 33938), (56, 33953), (90, 34145),

Gene: Chris\_57 Start: 40206, Stop: 40490, Start Num: 50  
Candidate Starts for Chris\_57:  
(26, 40104), (34, 40146), (35, 40149), (Start: 50 @40206 has 70 MA's), (55, 40230), (75, 40359), (76, 40362), (85, 40416), (91, 40446), (94, 40455), (96, 40467), (98, 40476),

Gene: Clipper\_58 Start: 40078, Stop: 40356, Start Num: 51  
Candidate Starts for Clipper\_58:  
(Start: 51 @40078 has 83 MA's), (79, 40252), (82, 40273), (83, 40276), (97, 40342), (98, 40345),

Gene: Collard\_49 Start: 37598, Stop: 37876, Start Num: 50  
Candidate Starts for Collard\_49:  
(34, 37532), (Start: 50 @37598 has 70 MA's), (57, 37628), (59, 37637), (75, 37751), (76, 37754),

Gene: Corndog\_13 Start: 5024, Stop: 5311, Start Num: 48  
Candidate Starts for Corndog\_13:  
(Start: 48 @5024 has 30 MA's), (82, 5228),

Gene: CrimD\_55 Start: 39734, Stop: 40012, Start Num: 51  
Candidate Starts for CrimD\_55:  
(Start: 51 @39734 has 83 MA's), (79, 39908), (82, 39929), (83, 39932), (97, 39998), (98, 40001),

Gene: Curiosium\_57 Start: 38369, Stop: 38650, Start Num: 50

Candidate Starts for Curiosium\_57:

(Start: 45 @38354 has 1 MA's), (Start: 49 @38366 has 44 MA's), (Start: 50 @38369 has 70 MA's), (67, 38468), (72, 38504), (74, 38519), (79, 38546), (82, 38567), (83, 38570), (97, 38636),

Gene: CurlyFries\_60 Start: 37511, Stop: 37849, Start Num: 38

Candidate Starts for CurlyFries\_60:

(19, 37394), (31, 37475), (Start: 38 @37511 has 1 MA's), (60, 37607), (81, 37742),

Gene: Dadosky\_52 Start: 37715, Stop: 37993, Start Num: 50

Candidate Starts for Dadosky\_52:

(14, 37514), (18, 37535), (Start: 50 @37715 has 70 MA's), (57, 37745), (58, 37751), (59, 37754), (75, 37868), (76, 37871), (89, 37946),

Gene: Dalmuri\_55 Start: 39617, Stop: 39895, Start Num: 51

Candidate Starts for Dalmuri\_55:

(Start: 51 @39617 has 83 MA's), (79, 39791), (82, 39812), (83, 39815), (97, 39881), (98, 39884),

Gene: DanSyl44\_63 Start: 40931, Stop: 41206, Start Num: 50

Candidate Starts for DanSyl44\_63:

(Start: 50 @40931 has 70 MA's), (54, 40949), (76, 41087), (78, 41102), (87, 41153), (92, 41174), (97, 41198),

Gene: DartGoblin\_58 Start: 40213, Stop: 40491, Start Num: 51

Candidate Starts for DartGoblin\_58:

(Start: 51 @40213 has 83 MA's), (79, 40387), (82, 40408), (83, 40411), (87, 40432), (96, 40471), (97, 40477),

Gene: DarthP\_57 Start: 40285, Stop: 40575, Start Num: 49

Candidate Starts for DarthP\_57:

(Start: 49 @40285 has 44 MA's), (75, 40438), (76, 40441), (85, 40495),

Gene: Dartin\_58 Start: 40108, Stop: 40395, Start Num: 49

Candidate Starts for Dartin\_58:

(Start: 47 @40105 has 3 MA's), (Start: 49 @40108 has 44 MA's), (75, 40261), (76, 40264), (87, 40330), (94, 40357), (96, 40369), (98, 40378),

Gene: Deby\_55 Start: 39673, Stop: 39951, Start Num: 51

Candidate Starts for Deby\_55:

(Start: 51 @39673 has 83 MA's), (79, 39847), (82, 39868), (83, 39871), (97, 39937), (98, 39940),

Gene: DelRio\_46 Start: 34571, Stop: 34891, Start Num: 37

Candidate Starts for DelRio\_46:

(Start: 36 @34568 has 1 MA's), (Start: 37 @34571 has 15 MA's), (52, 34637), (53, 34643), (56, 34658), (90, 34850),

Gene: Devera\_60 Start: 40253, Stop: 40531, Start Num: 51

Candidate Starts for Devera\_60:

(Start: 51 @40253 has 83 MA's), (79, 40427), (82, 40448), (83, 40451), (85, 40460), (97, 40517), (98, 40520),

Gene: DismalFunk\_58 Start: 41557, Stop: 41835, Start Num: 50

Candidate Starts for DismalFunk\_58:

(Start: 50 @41557 has 70 MA's), (75, 41710), (76, 41713), (90, 41794), (92, 41800),

Gene: DismalStressor\_58 Start: 41557, Stop: 41835, Start Num: 50

Candidate Starts for DismalStressor\_58:

(Start: 50 @41557 has 70 MA's), (75, 41710), (76, 41713), (90, 41794), (92, 41800),

Gene: Dole\_58 Start: 40256, Stop: 40534, Start Num: 51

Candidate Starts for Dole\_58:

(Start: 51 @40256 has 83 MA's), (79, 40430), (82, 40451), (83, 40454), (85, 40463), (97, 40520), (98, 40523),

Gene: DonkeyMan\_37 Start: 28581, Stop: 28874, Start Num: 46

Candidate Starts for DonkeyMan\_37:

(21, 28443), (Start: 46 @28581 has 7 MA's), (58, 28629), (75, 28752), (90, 28836), (91, 28839),

Gene: DoubleChamp\_48 Start: 37598, Stop: 37876, Start Num: 50

Candidate Starts for DoubleChamp\_48:

(34, 37532), (Start: 50 @37598 has 70 MA's), (57, 37628), (59, 37637), (75, 37751), (76, 37754),

Gene: Doughnut\_58 Start: 41176, Stop: 41454, Start Num: 50

Candidate Starts for Doughnut\_58:

(Start: 50 @41176 has 70 MA's), (75, 41329), (76, 41332), (90, 41413), (92, 41419),

Gene: DrHayes\_56 Start: 40396, Stop: 40674, Start Num: 51

Candidate Starts for DrHayes\_56:

(Start: 51 @40396 has 83 MA's), (82, 40591), (83, 40594), (87, 40615), (96, 40654), (97, 40660),

Gene: Durfee\_55 Start: 39814, Stop: 40092, Start Num: 51

Candidate Starts for Durfee\_55:

(Start: 51 @39814 has 83 MA's), (79, 39988), (82, 40009), (83, 40012), (97, 40078), (98, 40081),

Gene: Dylan\_12 Start: 5030, Stop: 5317, Start Num: 48

Candidate Starts for Dylan\_12:

(Start: 48 @5030 has 30 MA's), (82, 5234),

Gene: Edugator\_49 Start: 39136, Stop: 39414, Start Num: 50

Candidate Starts for Edugator\_49:

(14, 38935), (18, 38956), (Start: 50 @39136 has 70 MA's), (57, 39166), (58, 39172), (59, 39175), (75, 39289), (76, 39292), (89, 39367),

Gene: Efra2\_58 Start: 39255, Stop: 39536, Start Num: 50

Candidate Starts for Efra2\_58:

(Start: 50 @39255 has 70 MA's), (79, 39432), (82, 39453), (83, 39456), (97, 39522),

Gene: Ekdilam\_55 Start: 40290, Stop: 40580, Start Num: 49

Candidate Starts for Ekdilam\_55:

(Start: 49 @40290 has 44 MA's), (54, 40308), (75, 40443), (76, 40446), (82, 40488), (85, 40500), (94, 40539),

Gene: Ellie\_53 Start: 39638, Stop: 39928, Start Num: 49

Candidate Starts for Ellie\_53:

(2, 39266), (12, 39449), (28, 39548), (43, 39620), (Start: 49 @39638 has 44 MA's), (75, 39791), (76, 39794), (90, 39875),

Gene: Emerson\_56 Start: 39496, Stop: 39774, Start Num: 51

Candidate Starts for Emerson\_56:

(Start: 51 @39496 has 83 MA's), (79, 39670), (82, 39691), (83, 39694), (97, 39760), (98, 39763),

Gene: Enkosi\_50 Start: 40358, Stop: 40645, Start Num: 49

Candidate Starts for Enkosi\_50:

(Start: 49 @40358 has 44 MA's), (71, 40487), (76, 40514), (87, 40580), (96, 40619),

Gene: Eponine\_62 Start: 40649, Stop: 40924, Start Num: 50

Candidate Starts for Eponine\_62:

(Start: 50 @40649 has 70 MA's), (54, 40667), (76, 40805), (78, 40820), (87, 40871), (92, 40892), (97, 40916),

Gene: Familton\_12 Start: 4468, Stop: 4755, Start Num: 48

Candidate Starts for Familton\_12:

(Start: 48 @4468 has 30 MA's), (82, 4672),

Gene: Fefferhead\_55 Start: 39585, Stop: 39875, Start Num: 49

Candidate Starts for Fefferhead\_55:

(2, 39213), (4, 39270), (12, 39396), (28, 39495), (Start: 49 @39585 has 44 MA's), (75, 39738), (76, 39741), (90, 39822), (96, 39846),

Gene: Feyre\_51 Start: 39951, Stop: 40229, Start Num: 50

Candidate Starts for Feyre\_51:

(14, 39750), (34, 39885), (Start: 50 @39951 has 70 MA's), (57, 39981), (75, 40104), (76, 40107), (83, 40152), (94, 40200),

Gene: Findley\_58 Start: 41550, Stop: 41828, Start Num: 50

Candidate Starts for Findley\_58:

(Start: 50 @41550 has 70 MA's), (75, 41703), (76, 41706), (90, 41787), (92, 41793),

Gene: Fionnbharth\_60 Start: 40047, Stop: 40322, Start Num: 50

Candidate Starts for Fionnbharth\_60:

(Start: 50 @40047 has 70 MA's), (54, 40065), (76, 40203), (78, 40218), (87, 40269), (92, 40290), (97, 40314),

Gene: Firecracker\_12 Start: 4763, Stop: 5050, Start Num: 48

Candidate Starts for Firecracker\_12:

(Start: 48 @4763 has 30 MA's), (82, 4967),

Gene: FoulBall\_11 Start: 4468, Stop: 4755, Start Num: 48

Candidate Starts for FoulBall\_11:

(Start: 48 @4468 has 30 MA's), (82, 4672),

Gene: Francois\_44 Start: 33464, Stop: 33787, Start Num: 36

Candidate Starts for Francois\_44:

(Start: 36 @33464 has 1 MA's), (Start: 37 @33467 has 15 MA's), (56, 33554), (90, 33746),

Gene: GMA4\_38 Start: 29479, Stop: 29760, Start Num: 49

Candidate Starts for GMA4\_38:

(Start: 49 @29479 has 44 MA's),

Gene: Ganymede\_56 Start: 39875, Stop: 40153, Start Num: 51  
Candidate Starts for Ganymede\_56:  
(Start: 51 @39875 has 83 MA's), (79, 40049), (82, 40070), (83, 40073), (97, 40139), (98, 40142),

Gene: Gengar\_50 Start: 38562, Stop: 38840, Start Num: 50  
Candidate Starts for Gengar\_50:  
(Start: 50 @38562 has 70 MA's), (57, 38592), (75, 38715), (76, 38718), (83, 38763), (94, 38811),

Gene: Geraldini\_58 Start: 40549, Stop: 40827, Start Num: 51  
Candidate Starts for Geraldini\_58:  
(Start: 51 @40549 has 83 MA's), (79, 40723), (82, 40744), (83, 40747), (97, 40813), (98, 40816),

Gene: GrandSlam\_45 Start: 33866, Stop: 34186, Start Num: 37  
Candidate Starts for GrandSlam\_45:  
(Start: 36 @33863 has 1 MA's), (Start: 37 @33866 has 15 MA's), (52, 33932), (53, 33938), (56, 33953),  
(90, 34145),

Gene: Guanica15\_57 Start: 38996, Stop: 39277, Start Num: 50  
Candidate Starts for Guanica15\_57:  
(Start: 33 @38933 has 1 MA's), (40, 38954), (Start: 50 @38996 has 70 MA's), (79, 39173), (82, 39194),  
(83, 39197), (97, 39263),

Gene: Guillsminger\_51 Start: 38533, Stop: 38811, Start Num: 50  
Candidate Starts for Guillsminger\_51:  
(Start: 50 @38533 has 70 MA's), (57, 38563), (75, 38686), (76, 38689), (83, 38734), (94, 38782),

Gene: Hammy\_57 Start: 40273, Stop: 40563, Start Num: 49  
Candidate Starts for Hammy\_57:  
(Start: 49 @40273 has 44 MA's), (75, 40426), (76, 40429), (85, 40483),

Gene: Hamood\_45 Start: 33866, Stop: 34186, Start Num: 37  
Candidate Starts for Hamood\_45:  
(Start: 36 @33863 has 1 MA's), (Start: 37 @33866 has 15 MA's), (52, 33932), (53, 33938), (56, 33953),  
(90, 34145),

Gene: HedwigODU\_55 Start: 39499, Stop: 39777, Start Num: 51  
Candidate Starts for HedwigODU\_55:  
(Start: 51 @39499 has 83 MA's), (79, 39673), (82, 39694), (83, 39697), (97, 39763), (98, 39766),

Gene: Heftyboy\_50 Start: 38708, Stop: 38986, Start Num: 50  
Candidate Starts for Heftyboy\_50:  
(34, 38642), (Start: 50 @38708 has 70 MA's), (57, 38738), (75, 38861), (76, 38864), (83, 38909), (94,  
38957),

Gene: Heinz\_37 Start: 26504, Stop: 26797, Start Num: 46  
Candidate Starts for Heinz\_37:  
(21, 26366), (Start: 46 @26504 has 7 MA's), (58, 26552), (90, 26759), (91, 26762),

Gene: Hibiscus\_38 Start: 26453, Stop: 26746, Start Num: 46  
Candidate Starts for Hibiscus\_38:  
(21, 26315), (Start: 46 @26453 has 7 MA's), (58, 26501), (90, 26708), (91, 26711),

Gene: Homura\_55 Start: 39617, Stop: 39895, Start Num: 51

Candidate Starts for Homura\_55:

(Start: 51 @39617 has 83 MA's), (79, 39791), (82, 39812), (83, 39815), (97, 39881), (98, 39884),

Gene: Hurricane\_56 Start: 39943, Stop: 40239, Start Num: 47

Candidate Starts for Hurricane\_56:

(Start: 47 @39943 has 3 MA's), (Start: 49 @39946 has 44 MA's), (64, 40036), (75, 40102), (76, 40105), (92, 40192),

Gene: Hyperbowlee\_55 Start: 39814, Stop: 40092, Start Num: 51

Candidate Starts for Hyperbowlee\_55:

(Start: 51 @39814 has 83 MA's), (79, 39988), (82, 40009), (83, 40012), (97, 40078), (98, 40081),

Gene: Idergollasper\_11 Start: 4468, Stop: 4755, Start Num: 48

Candidate Starts for Idergollasper\_11:

(Start: 48 @4468 has 30 MA's), (82, 4672),

Gene: Illumine\_58 Start: 40255, Stop: 40533, Start Num: 51

Candidate Starts for Illumine\_58:

(Start: 51 @40255 has 83 MA's), (79, 40429), (82, 40450), (83, 40453), (85, 40462), (97, 40519), (98, 40522),

Gene: Imara\_12 Start: 4721, Stop: 5008, Start Num: 48

Candidate Starts for Imara\_12:

(Start: 48 @4721 has 30 MA's), (82, 4925),

Gene: Inky\_55 Start: 39617, Stop: 39895, Start Num: 51

Candidate Starts for Inky\_55:

(Start: 51 @39617 has 83 MA's), (79, 39791), (82, 39812), (83, 39815), (97, 39881), (98, 39884),

Gene: InvictusManeo\_49 Start: 37641, Stop: 37919, Start Num: 50

Candidate Starts for InvictusManeo\_49:

(34, 37575), (Start: 50 @37641 has 70 MA's), (57, 37671), (59, 37680), (75, 37794), (76, 37797),

Gene: JAWS\_55 Start: 39488, Stop: 39766, Start Num: 51

Candidate Starts for JAWS\_55:

(Start: 51 @39488 has 83 MA's), (79, 39662), (82, 39683), (83, 39686), (97, 39752), (98, 39755),

Gene: JF1\_60 Start: 39964, Stop: 40239, Start Num: 50

Candidate Starts for JF1\_60:

(Start: 50 @39964 has 70 MA's), (54, 39982), (76, 40120), (78, 40135), (87, 40186), (92, 40207), (97, 40231),

Gene: JangDynasty\_11 Start: 4557, Stop: 4844, Start Num: 48

Candidate Starts for JangDynasty\_11:

(Start: 48 @4557 has 30 MA's), (82, 4761),

Gene: Jarvi\_55 Start: 39617, Stop: 39895, Start Num: 51

Candidate Starts for Jarvi\_55:

(Start: 51 @39617 has 83 MA's), (79, 39791), (82, 39812), (83, 39815), (97, 39881), (98, 39884),

Gene: Jayhawk\_56 Start: 39497, Stop: 39775, Start Num: 51

Candidate Starts for Jayhawk\_56:

(Start: 51 @39497 has 83 MA's), (79, 39671), (82, 39692), (83, 39695), (97, 39761), (98, 39764),

Gene: Jeckyll\_55 Start: 39617, Stop: 39895, Start Num: 51

Candidate Starts for Jeckyll\_55:

(Start: 51 @39617 has 83 MA's), (79, 39791), (82, 39812), (83, 39815), (97, 39881), (98, 39884),

Gene: Jflix2\_60 Start: 40583, Stop: 40909, Start Num: 39

Candidate Starts for Jflix2\_60:

(27, 40547), (Start: 39 @40583 has 1 MA's), (97, 40898), (98, 40901), (99, 40904),

Gene: Jojo24\_36 Start: 27174, Stop: 27467, Start Num: 46

Candidate Starts for Jojo24\_36:

(21, 27036), (Start: 46 @27174 has 7 MA's), (58, 27222), (90, 27429), (91, 27432),

Gene: Joy99\_55 Start: 39546, Stop: 39824, Start Num: 51

Candidate Starts for Joy99\_55:

(Start: 51 @39546 has 83 MA's), (79, 39720), (82, 39741), (83, 39744), (97, 39810), (98, 39813),

Gene: Juliette\_62 Start: 40111, Stop: 40386, Start Num: 50

Candidate Starts for Juliette\_62:

(Start: 50 @40111 has 70 MA's), (54, 40129), (76, 40267), (78, 40282), (87, 40333), (92, 40354), (97, 40378),

Gene: Keshu\_58 Start: 40041, Stop: 40337, Start Num: 47

Candidate Starts for Keshu\_58:

(Start: 47 @40041 has 3 MA's), (Start: 49 @40044 has 44 MA's), (75, 40200), (76, 40203),

Gene: KiSi\_59 Start: 40237, Stop: 40521, Start Num: 50

Candidate Starts for KiSi\_59:

(24, 40129), (34, 40177), (35, 40180), (Start: 50 @40237 has 70 MA's), (76, 40393), (80, 40417), (82, 40435), (94, 40486), (96, 40498), (98, 40507),

Gene: KingPhillip3\_11 Start: 4468, Stop: 4755, Start Num: 48

Candidate Starts for KingPhillip3\_11:

(Start: 48 @4468 has 30 MA's), (82, 4672),

Gene: Kratio\_48 Start: 37190, Stop: 37468, Start Num: 50

Candidate Starts for Kratio\_48:

(14, 36989), (18, 37010), (34, 37124), (Start: 50 @37190 has 70 MA's), (57, 37220), (58, 37226), (59, 37229), (75, 37343), (76, 37346), (89, 37421),

Gene: Kraw\_60 Start: 39799, Stop: 40074, Start Num: 50

Candidate Starts for Kraw\_60:

(Start: 50 @39799 has 70 MA's), (54, 39817), (76, 39955), (78, 39970), (87, 40021), (92, 40042),

Gene: Krili\_12 Start: 4642, Stop: 4929, Start Num: 48

Candidate Starts for Krili\_12:

(Start: 48 @4642 has 30 MA's), (82, 4846), (97, 4915),

Gene: Krueger\_62 Start: 40156, Stop: 40446, Start Num: 49

Candidate Starts for Krueger\_62:

(Start: 49 @40156 has 44 MA's), (74, 40306), (76, 40312), (90, 40393),

Gene: Larva\_51 Start: 38587, Stop: 38865, Start Num: 50

Candidate Starts for Larva\_51:

(14, 38386), (18, 38407), (Start: 50 @38587 has 70 MA's), (57, 38617), (58, 38623), (59, 38626), (75, 38740), (76, 38743), (89, 38818),

Gene: LastHope\_58 Start: 38580, Stop: 38930, Start Num: 33

Candidate Starts for LastHope\_58:

(Start: 33 @38580 has 1 MA's), (40, 38601), (Start: 50 @38649 has 70 MA's), (69, 38760), (79, 38826), (82, 38847), (83, 38850), (97, 38916),

Gene: LaterM\_56 Start: 40380, Stop: 40658, Start Num: 51

Candidate Starts for LaterM\_56:

(Start: 51 @40380 has 83 MA's), (79, 40554), (82, 40575), (83, 40578), (87, 40599), (97, 40644), (98, 40647),

Gene: Lavahound\_57 Start: 40930, Stop: 41220, Start Num: 49

Candidate Starts for Lavahound\_57:

(1, 40486), (4, 40615), (12, 40741), (28, 40840), (Start: 49 @40930 has 44 MA's), (75, 41083), (76, 41086), (90, 41167), (96, 41191),

Gene: LeMond\_59 Start: 40218, Stop: 40502, Start Num: 50

Candidate Starts for LeMond\_59:

(24, 40110), (34, 40158), (35, 40161), (Start: 50 @40218 has 70 MA's), (76, 40374), (80, 40398), (82, 40416), (94, 40467), (96, 40479), (98, 40488),

Gene: Lea83\_56 Start: 39999, Stop: 40292, Start Num: 49

Candidate Starts for Lea83\_56:

(13, 39807), (24, 39894), (35, 39945), (40, 39954), (Start: 49 @39999 has 44 MA's), (64, 40089), (75, 40155), (76, 40158),

Gene: Lebo14\_59 Start: 40066, Stop: 40341, Start Num: 50

Candidate Starts for Lebo14\_59:

(Start: 50 @40066 has 70 MA's), (54, 40084), (76, 40222), (78, 40237), (87, 40288), (92, 40309), (97, 40333),

Gene: Leston\_50 Start: 38662, Stop: 38940, Start Num: 50

Candidate Starts for Leston\_50:

(Start: 50 @38662 has 70 MA's), (57, 38692), (75, 38815), (76, 38818), (83, 38863), (94, 38911),

Gene: LilDirt\_48 Start: 37399, Stop: 37677, Start Num: 50

Candidate Starts for LilDirt\_48:

(34, 37333), (Start: 50 @37399 has 70 MA's), (57, 37429), (59, 37438), (75, 37552), (76, 37555),

Gene: LilPharaoh\_48 Start: 37473, Stop: 37760, Start Num: 49

Candidate Starts for LilPharaoh\_48:

(Start: 49 @37473 has 44 MA's), (71, 37602), (76, 37629), (87, 37695), (96, 37734),

Gene: LindNT\_54 Start: 39702, Stop: 39980, Start Num: 51

Candidate Starts for LindNT\_54:

(Start: 51 @39702 has 83 MA's), (79, 39876), (82, 39897), (83, 39900), (87, 39921), (97, 39966), (98, 39969),

Gene: Llorens\_55 Start: 39617, Stop: 39895, Start Num: 51

Candidate Starts for Llorens\_55:

(Start: 51 @39617 has 83 MA's), (79, 39791), (82, 39812), (83, 39815), (97, 39881), (98, 39884),

Gene: Lunahalos\_55 Start: 39617, Stop: 39895, Start Num: 51

Candidate Starts for Lunahalos\_55:

(Start: 51 @39617 has 83 MA's), (79, 39791), (82, 39812), (83, 39815), (97, 39881), (98, 39884),

Gene: MacKat\_50 Start: 34962, Stop: 35240, Start Num: 51

Candidate Starts for MacKat\_50:

(Start: 51 @34962 has 83 MA's), (79, 35136), (82, 35157), (83, 35160), (97, 35226), (98, 35229),

Gene: MacnCheese\_58 Start: 40525, Stop: 40812, Start Num: 49

Candidate Starts for MacnCheese\_58:

(Start: 49 @40525 has 44 MA's), (59, 40567), (75, 40681), (76, 40684), (96, 40789),

Gene: MadKillah\_12 Start: 4663, Stop: 4950, Start Num: 48

Candidate Starts for MadKillah\_12:

(Start: 48 @4663 has 30 MA's), (82, 4867), (97, 4936),

Gene: Madraxi\_63 Start: 43104, Stop: 43436, Start Num: 37

Candidate Starts for Madraxi\_63:

(9, 42969), (22, 43047), (25, 43071), (Start: 37 @43104 has 15 MA's), (93, 43404), (97, 43425), (98, 43428), (99, 43431),

Gene: MalagasyRose\_57 Start: 38780, Stop: 39061, Start Num: 49

Candidate Starts for MalagasyRose\_57:

(Start: 49 @38780 has 44 MA's), (57, 38813), (61, 38831), (68, 38885), (74, 38933), (75, 38936), (76, 38939), (85, 38993), (92, 39026),

Gene: Malthus\_61 Start: 39799, Stop: 40074, Start Num: 50

Candidate Starts for Malthus\_61:

(Start: 50 @39799 has 70 MA's), (54, 39817), (76, 39955), (78, 39970), (87, 40021), (92, 40042),

Gene: Marcoliusprime\_58 Start: 41557, Stop: 41835, Start Num: 50

Candidate Starts for Marcoliusprime\_58:

(Start: 50 @41557 has 70 MA's), (75, 41710), (76, 41713), (90, 41794), (92, 41800),

Gene: MarkPhew\_58 Start: 39906, Stop: 40190, Start Num: 50

Candidate Starts for MarkPhew\_58:

(35, 39849), (Start: 50 @39906 has 70 MA's), (55, 39930), (75, 40059), (76, 40062), (80, 40086), (87, 40128), (91, 40146), (94, 40155), (96, 40167), (98, 40176),

Gene: Marshawn\_57 Start: 39928, Stop: 40218, Start Num: 49

Candidate Starts for Marshawn\_57:

(Start: 49 @39928 has 44 MA's), (76, 40084), (82, 40126), (94, 40177), (96, 40189),

Gene: McMater\_58 Start: 40108, Stop: 40395, Start Num: 49

Candidate Starts for McMater\_58:

(Start: 47 @40105 has 3 MA's), (Start: 49 @40108 has 44 MA's), (75, 40261), (76, 40264), (87, 40330), (94, 40357), (96, 40369), (98, 40378),

Gene: Mdavu\_49 Start: 37734, Stop: 38021, Start Num: 49

Candidate Starts for Mdavu\_49:

(Start: 49 @37734 has 44 MA's), (71, 37863), (76, 37890), (87, 37956), (96, 37995),

Gene: MeaningOfLife\_56 Start: 40372, Stop: 40650, Start Num: 51  
Candidate Starts for MeaningOfLife\_56:  
(Start: 51 @40372 has 83 MA's), (79, 40546), (82, 40567), (83, 40570), (97, 40636), (98, 40639),

Gene: Megsy\_57 Start: 39770, Stop: 40048, Start Num: 51  
Candidate Starts for Megsy\_57:  
(Start: 51 @39770 has 83 MA's), (76, 39923), (79, 39944), (82, 39965), (83, 39968), (97, 40034),

Gene: Milly\_58 Start: 41530, Stop: 41808, Start Num: 50  
Candidate Starts for Milly\_58:  
(Start: 50 @41530 has 70 MA's), (75, 41683), (76, 41686), (90, 41767), (92, 41773),

Gene: Miryou\_53 Start: 40864, Stop: 41142, Start Num: 50  
Candidate Starts for Miryou\_53:  
(Start: 50 @40864 has 70 MA's), (57, 40894), (75, 41017), (76, 41020), (83, 41065), (94, 41113),

Gene: MissDaisy\_58 Start: 39319, Stop: 39594, Start Num: 50  
Candidate Starts for MissDaisy\_58:  
(Start: 50 @39319 has 70 MA's), (54, 39337), (76, 39475), (78, 39490), (87, 39541), (92, 39562), (97, 39586),

Gene: Mitti\_60 Start: 39978, Stop: 40253, Start Num: 50  
Candidate Starts for Mitti\_60:  
(Start: 50 @39978 has 70 MA's), (54, 39996), (76, 40134), (78, 40149), (87, 40200), (92, 40221), (97, 40245),

Gene: Mori\_12 Start: 4656, Stop: 4943, Start Num: 48  
Candidate Starts for Mori\_12:  
(Start: 48 @4656 has 30 MA's), (82, 4860), (97, 4929),

Gene: Mufasa\_58 Start: 41120, Stop: 41398, Start Num: 50  
Candidate Starts for Mufasa\_58:  
(Start: 50 @41120 has 70 MA's), (75, 41273), (76, 41276), (90, 41357), (92, 41363),

Gene: Mulch\_45 Start: 33389, Stop: 33709, Start Num: 37  
Candidate Starts for Mulch\_45:  
(5, 33152), (Start: 36 @33386 has 1 MA's), (Start: 37 @33389 has 15 MA's), (52, 33455), (53, 33461), (56, 33476), (90, 33668),

Gene: Murai\_12 Start: 4656, Stop: 4943, Start Num: 48  
Candidate Starts for Murai\_12:  
(Start: 48 @4656 has 30 MA's), (82, 4860), (97, 4929),

Gene: Murucutumbu\_56 Start: 40479, Stop: 40757, Start Num: 51  
Candidate Starts for Murucutumbu\_56:  
(Start: 51 @40479 has 83 MA's), (79, 40653), (82, 40674), (83, 40677), (97, 40743), (98, 40746),

Gene: Mynx\_56 Start: 39818, Stop: 40096, Start Num: 51  
Candidate Starts for Mynx\_56:  
(Start: 51 @39818 has 83 MA's), (79, 39992), (82, 40013), (83, 40016), (97, 40082), (98, 40085),

Gene: Nadeem\_45 Start: 33389, Stop: 33709, Start Num: 37

Candidate Starts for Nadeem\_45:

(5, 33152), (Start: 36 @33386 has 1 MA's), (Start: 37 @33389 has 15 MA's), (52, 33455), (53, 33461), (56, 33476), (90, 33668),

Gene: NancyRae\_45 Start: 33399, Stop: 33719, Start Num: 37

Candidate Starts for NancyRae\_45:

(5, 33162), (Start: 36 @33396 has 1 MA's), (Start: 37 @33399 has 15 MA's), (52, 33465), (53, 33471), (56, 33486), (90, 33678),

Gene: Neighly\_52 Start: 38586, Stop: 38864, Start Num: 50

Candidate Starts for Neighly\_52:

(14, 38385), (18, 38406), (Start: 50 @38586 has 70 MA's), (57, 38616), (58, 38622), (59, 38625), (75, 38739), (76, 38742), (89, 38817),

Gene: Nergal\_52 Start: 37470, Stop: 37751, Start Num: 49

Candidate Starts for Nergal\_52:

(Start: 49 @37470 has 44 MA's), (54, 37491), (59, 37512), (61, 37521), (76, 37629),

Gene: Nibb\_57 Start: 39610, Stop: 39894, Start Num: 50

Candidate Starts for Nibb\_57:

(35, 39553), (Start: 50 @39610 has 70 MA's), (55, 39634), (59, 39649), (75, 39763), (76, 39766), (80, 39790), (85, 39820), (91, 39850), (94, 39859), (96, 39871), (98, 39880),

Gene: NiebruSaylor\_12 Start: 4656, Stop: 4943, Start Num: 48

Candidate Starts for NiebruSaylor\_12:

(Start: 48 @4656 has 30 MA's), (82, 4860), (97, 4929),

Gene: Nikao\_51 Start: 40358, Stop: 40645, Start Num: 49

Candidate Starts for Nikao\_51:

(Start: 49 @40358 has 44 MA's), (71, 40487), (76, 40514), (87, 40580), (96, 40619),

Gene: Niklas\_58 Start: 40169, Stop: 40456, Start Num: 49

Candidate Starts for Niklas\_58:

(Start: 47 @40166 has 3 MA's), (Start: 49 @40169 has 44 MA's), (75, 40322), (76, 40325), (87, 40391), (94, 40418), (96, 40430), (98, 40439),

Gene: November\_55 Start: 40159, Stop: 40449, Start Num: 49

Candidate Starts for November\_55:

(Start: 49 @40159 has 44 MA's), (75, 40312), (76, 40315), (85, 40369),

Gene: Nutello\_48 Start: 37745, Stop: 38032, Start Num: 49

Candidate Starts for Nutello\_48:

(Start: 49 @37745 has 44 MA's), (71, 37874), (76, 37901), (87, 37967), (96, 38006),

Gene: OkiRoe\_50 Start: 38535, Stop: 38813, Start Num: 50

Candidate Starts for OkiRoe\_50:

(Start: 50 @38535 has 70 MA's), (57, 38565), (75, 38688), (76, 38691), (83, 38736), (94, 38784),

Gene: OmniCritical\_59 Start: 39787, Stop: 40062, Start Num: 50

Candidate Starts for OmniCritical\_59:

(Start: 50 @39787 has 70 MA's), (54, 39805), (76, 39943), (78, 39958), (87, 40009), (92, 40030), (97, 40054),

Gene: Omnicron\_53 Start: 38139, Stop: 38417, Start Num: 50

Candidate Starts for Omnicron\_53:

(14, 37938), (15, 37941), (34, 38073), (Start: 50 @38139 has 70 MA's), (57, 38169), (66, 38235), (76, 38295), (77, 38298), (94, 38388),

Gene: Oscar\_59 Start: 40123, Stop: 40407, Start Num: 50

Candidate Starts for Oscar\_59:

(24, 40015), (34, 40063), (35, 40066), (Start: 50 @40123 has 70 MA's), (76, 40279), (80, 40303), (94, 40372), (96, 40384), (98, 40393),

Gene: Padfoot\_55 Start: 39814, Stop: 40092, Start Num: 51

Candidate Starts for Padfoot\_55:

(Start: 51 @39814 has 83 MA's), (79, 39988), (82, 40009), (83, 40012), (97, 40078), (98, 40081),

Gene: Padpat\_57 Start: 39496, Stop: 39774, Start Num: 51

Candidate Starts for Padpat\_57:

(Start: 51 @39496 has 83 MA's), (79, 39670), (82, 39691), (83, 39694), (97, 39760), (98, 39763),

Gene: Paola\_50 Start: 38533, Stop: 38811, Start Num: 50

Candidate Starts for Paola\_50:

(Start: 50 @38533 has 70 MA's), (57, 38563), (75, 38686), (76, 38689), (83, 38734), (94, 38782),

Gene: Parada\_45 Start: 33389, Stop: 33709, Start Num: 37

Candidate Starts for Parada\_45:

(5, 33152), (Start: 36 @33386 has 1 MA's), (Start: 37 @33389 has 15 MA's), (52, 33455), (53, 33461), (56, 33476), (90, 33668),

Gene: Patt\_57 Start: 39043, Stop: 39318, Start Num: 50

Candidate Starts for Patt\_57:

(Start: 50 @39043 has 70 MA's), (54, 39061), (76, 39199), (78, 39214), (87, 39265), (92, 39286), (97, 39310),

Gene: Peanam\_58 Start: 40127, Stop: 40414, Start Num: 49

Candidate Starts for Peanam\_58:

(Start: 47 @40124 has 3 MA's), (Start: 49 @40127 has 44 MA's), (75, 40280), (76, 40283), (87, 40349), (94, 40376), (96, 40388), (98, 40397),

Gene: Peel\_55 Start: 39619, Stop: 39897, Start Num: 51

Candidate Starts for Peel\_55:

(Start: 51 @39619 has 83 MA's), (79, 39793), (82, 39814), (83, 39817), (97, 39883), (98, 39886),

Gene: Pharb\_54 Start: 38890, Stop: 39177, Start Num: 49

Candidate Starts for Pharb\_54:

(26, 38794), (29, 38803), (40, 38845), (Start: 49 @38890 has 44 MA's), (58, 38929), (64, 38980), (75, 39046), (76, 39049),

Gene: PhelpsODU\_57 Start: 39094, Stop: 39384, Start Num: 49

Candidate Starts for PhelpsODU\_57:

(42, 39073), (Start: 49 @39094 has 44 MA's), (90, 39331),

Gene: Phrank\_59 Start: 39154, Stop: 39444, Start Num: 49

Candidate Starts for Phrank\_59:

(42, 39133), (Start: 49 @39154 has 44 MA's), (90, 39391),

Gene: Piatt\_55 Start: 39814, Stop: 40092, Start Num: 51

Candidate Starts for Piatt\_55:

(Start: 51 @39814 has 83 MA's), (79, 39988), (82, 40009), (83, 40012), (97, 40078), (98, 40081),

Gene: Pimento\_46 Start: 33040, Stop: 33360, Start Num: 37

Candidate Starts for Pimento\_46:

(Start: 36 @33037 has 1 MA's), (Start: 37 @33040 has 15 MA's), (52, 33106), (53, 33112), (56, 33127), (90, 33319),

Gene: Pisa1\_55 Start: 40475, Stop: 40753, Start Num: 51

Candidate Starts for Pisa1\_55:

(Start: 51 @40475 has 83 MA's), (79, 40649), (82, 40670), (83, 40673), (87, 40694), (96, 40733), (97, 40739),

Gene: Pisa4\_49 Start: 35844, Stop: 36122, Start Num: 51

Candidate Starts for Pisa4\_49:

(Start: 51 @35844 has 83 MA's), (79, 36018), (82, 36039), (83, 36042), (87, 36063), (96, 36102), (97, 36108),

Gene: Pixie\_55 Start: 39484, Stop: 39777, Start Num: 49

Candidate Starts for Pixie\_55:

(Start: 47 @39481 has 3 MA's), (Start: 49 @39484 has 44 MA's), (64, 39574), (75, 39640), (76, 39643), (92, 39730),

Gene: Pokerus\_54 Start: 39549, Stop: 39827, Start Num: 51

Candidate Starts for Pokerus\_54:

(Start: 51 @39549 has 83 MA's), (79, 39723), (82, 39744), (83, 39747), (97, 39813), (98, 39816),

Gene: Prithvi\_56 Start: 39702, Stop: 39980, Start Num: 51

Candidate Starts for Prithvi\_56:

(Start: 51 @39702 has 83 MA's), (79, 39876), (82, 39897), (83, 39900), (87, 39921), (97, 39966), (98, 39969),

Gene: Psycho\_50 Start: 37712, Stop: 37990, Start Num: 50

Candidate Starts for Psycho\_50:

(14, 37511), (18, 37532), (Start: 50 @37712 has 70 MA's), (57, 37742), (58, 37748), (59, 37751), (75, 37865), (76, 37868), (89, 37943),

Gene: Qhanda\_62 Start: 39815, Stop: 40090, Start Num: 50

Candidate Starts for Qhanda\_62:

(Start: 50 @39815 has 70 MA's), (54, 39833), (76, 39971), (78, 39986), (87, 40037), (92, 40058), (97, 40082),

Gene: QuincyRose\_54 Start: 39875, Stop: 40153, Start Num: 51

Candidate Starts for QuincyRose\_54:

(Start: 51 @39875 has 83 MA's), (79, 40049), (82, 40070), (83, 40073), (97, 40139), (98, 40142),

Gene: REQ1\_30 Start: 12128, Stop: 12460, Start Num: 39

Candidate Starts for REQ1\_30:

(3, 11819), (11, 11975), (16, 11987), (27, 12074), (30, 12083), (32, 12098), (Start: 39 @12128 has 1 MA's), (82, 12380), (97, 12449), (98, 12452), (99, 12455),

Gene: Ramen\_56 Start: 39501, Stop: 39779, Start Num: 51  
Candidate Starts for Ramen\_56:  
(Start: 51 @39501 has 83 MA's), (79, 39675), (82, 39696), (83, 39699), (97, 39765), (98, 39768),

Gene: Rando14\_52 Start: 36717, Stop: 36995, Start Num: 50  
Candidate Starts for Rando14\_52:  
(34, 36651), (Start: 50 @36717 has 70 MA's), (59, 36756), (75, 36870), (76, 36873), (94, 36966),

Gene: Rapunzel97\_56 Start: 39497, Stop: 39775, Start Num: 51  
Candidate Starts for Rapunzel97\_56:  
(Start: 51 @39497 has 83 MA's), (79, 39671), (82, 39692), (83, 39695), (97, 39761), (98, 39764),

Gene: RegnumDei\_55 Start: 37773, Stop: 38111, Start Num: 38  
Candidate Starts for RegnumDei\_55:  
(19, 37656), (31, 37737), (Start: 38 @37773 has 1 MA's), (61, 37875), (81, 38004),

Gene: Reptar3000\_58 Start: 39031, Stop: 39306, Start Num: 50  
Candidate Starts for Reptar3000\_58:  
(Start: 50 @39031 has 70 MA's), (54, 39049), (76, 39187), (78, 39202), (87, 39253), (92, 39274), (97, 39298),

Gene: Reyja\_37 Start: 27530, Stop: 27823, Start Num: 46  
Candidate Starts for Reyja\_37:  
(21, 27392), (Start: 46 @27530 has 7 MA's), (58, 27578), (75, 27701), (90, 27785), (91, 27788),

Gene: Richo\_58 Start: 40108, Stop: 40395, Start Num: 49  
Candidate Starts for Richo\_58:  
(Start: 47 @40105 has 3 MA's), (Start: 49 @40108 has 44 MA's), (75, 40261), (76, 40264), (87, 40330), (94, 40357), (96, 40369), (98, 40378),

Gene: Rosmarinus\_55 Start: 39605, Stop: 39883, Start Num: 51  
Candidate Starts for Rosmarinus\_55:  
(Start: 51 @39605 has 83 MA's), (79, 39779), (82, 39800), (83, 39803), (97, 39869), (98, 39872),

Gene: Ruthiejr\_61 Start: 39849, Stop: 40124, Start Num: 50  
Candidate Starts for Ruthiejr\_61:  
(Start: 50 @39849 has 70 MA's), (54, 39867), (76, 40005), (78, 40020), (87, 40071), (92, 40092), (97, 40116),

Gene: Ryadel\_14 Start: 5250, Stop: 5537, Start Num: 48  
Candidate Starts for Ryadel\_14:  
(Start: 48 @5250 has 30 MA's), (82, 5454),

Gene: SFuller\_59 Start: 40775, Stop: 41101, Start Num: 39  
Candidate Starts for SFuller\_59:  
(27, 40739), (Start: 39 @40775 has 1 MA's), (93, 41069), (97, 41090), (98, 41093), (99, 41096),

Gene: SamScheppers\_58 Start: 40278, Stop: 40553, Start Num: 50  
Candidate Starts for SamScheppers\_58:  
(Start: 50 @40278 has 70 MA's), (54, 40296), (76, 40434), (78, 40449), (87, 40500), (92, 40521), (97, 40545),

Gene: SamuelLPlaqson\_56 Start: 40396, Stop: 40674, Start Num: 51

Candidate Starts for SamuelLPlaqson\_56:

(Start: 51 @40396 has 83 MA's), (82, 40591), (83, 40594), (87, 40615), (96, 40654), (97, 40660),

Gene: Santhid\_36 Start: 25893, Stop: 26186, Start Num: 46

Candidate Starts for Santhid\_36:

(21, 25755), (Start: 46 @25893 has 7 MA's), (58, 25941), (90, 26148), (91, 26151),

Gene: Scarlett\_59 Start: 40118, Stop: 40402, Start Num: 50

Candidate Starts for Scarlett\_59:

(24, 40010), (34, 40058), (35, 40061), (Start: 50 @40118 has 70 MA's), (76, 40274), (80, 40298), (82, 40316), (94, 40367), (96, 40379), (98, 40388),

Gene: SchoolBus\_11 Start: 4468, Stop: 4755, Start Num: 48

Candidate Starts for SchoolBus\_11:

(Start: 48 @4468 has 30 MA's), (82, 4672),

Gene: Schuy\_12 Start: 4663, Stop: 4950, Start Num: 48

Candidate Starts for Schuy\_12:

(Start: 48 @4663 has 30 MA's), (82, 4867), (97, 4936),

Gene: SgtBeansprout\_48 Start: 37745, Stop: 38032, Start Num: 49

Candidate Starts for SgtBeansprout\_48:

(Start: 49 @37745 has 44 MA's), (71, 37874), (76, 37901), (87, 37967), (96, 38006),

Gene: Shadow1\_61 Start: 40001, Stop: 40291, Start Num: 49

Candidate Starts for Shadow1\_61:

(Start: 49 @40001 has 44 MA's), (74, 40151), (76, 40157), (90, 40238),

Gene: Shagrat\_55 Start: 38233, Stop: 38571, Start Num: 38

Candidate Starts for Shagrat\_55:

(19, 38116), (21, 38143), (31, 38197), (Start: 38 @38233 has 1 MA's), (62, 38356), (73, 38419), (98, 38551),

Gene: Shaobing\_58 Start: 40145, Stop: 40432, Start Num: 49

Candidate Starts for Shaobing\_58:

(Start: 47 @40142 has 3 MA's), (Start: 49 @40145 has 44 MA's), (75, 40298), (76, 40301), (87, 40367), (94, 40394), (96, 40406), (98, 40415),

Gene: ShedlockHolmes\_57 Start: 40003, Stop: 40296, Start Num: 49

Candidate Starts for ShedlockHolmes\_57:

(13, 39811), (24, 39898), (35, 39949), (Start: 49 @40003 has 44 MA's), (64, 40093), (75, 40159), (76, 40162),

Gene: ShiaSurprise\_56 Start: 39814, Stop: 40092, Start Num: 51

Candidate Starts for ShiaSurprise\_56:

(Start: 51 @39814 has 83 MA's), (79, 39988), (82, 40009), (83, 40012), (97, 40078), (98, 40081),

Gene: Shida\_12 Start: 4722, Stop: 5009, Start Num: 48

Candidate Starts for Shida\_12:

(Start: 48 @4722 has 30 MA's), (82, 4926),

Gene: SirPhilip\_57 Start: 40407, Stop: 40697, Start Num: 49

Candidate Starts for SirPhilip\_57:

(23, 40281), (Start: 49 @40407 has 44 MA's), (59, 40446), (60, 40449), (75, 40560), (76, 40563), (94, 40656), (96, 40668),

Gene: Slarp\_60 Start: 39806, Stop: 40081, Start Num: 50

Candidate Starts for Slarp\_60:

(Start: 50 @39806 has 70 MA's), (54, 39824), (76, 39962), (78, 39977), (87, 40028), (92, 40049), (97, 40073),

Gene: Slimphazie\_55 Start: 39497, Stop: 39775, Start Num: 51

Candidate Starts for Slimphazie\_55:

(Start: 51 @39497 has 83 MA's), (79, 39671), (82, 39692), (83, 39695), (97, 39761), (98, 39764),

Gene: Smooch\_13 Start: 4986, Stop: 5273, Start Num: 48

Candidate Starts for Smooch\_13:

(Start: 48 @4986 has 30 MA's), (82, 5190),

Gene: SoSeph\_50 Start: 38708, Stop: 38986, Start Num: 50

Candidate Starts for SoSeph\_50:

(34, 38642), (Start: 50 @38708 has 70 MA's), (57, 38738), (75, 38861), (76, 38864), (83, 38909), (94, 38957),

Gene: Spock\_55 Start: 39618, Stop: 39896, Start Num: 51

Candidate Starts for Spock\_55:

(Start: 51 @39618 has 83 MA's), (79, 39792), (82, 39813), (83, 39816), (97, 39882), (98, 39885),

Gene: Stinson\_56 Start: 40002, Stop: 40280, Start Num: 51

Candidate Starts for Stinson\_56:

(Start: 51 @40002 has 83 MA's), (79, 40176), (82, 40197), (83, 40200), (97, 40266), (98, 40269),

Gene: Strobilo\_58 Start: 41532, Stop: 41810, Start Num: 50

Candidate Starts for Strobilo\_58:

(Start: 50 @41532 has 70 MA's), (75, 41685), (76, 41688), (90, 41769), (92, 41775),

Gene: Sulley\_55 Start: 39667, Stop: 39945, Start Num: 51

Candidate Starts for Sulley\_55:

(Start: 51 @39667 has 83 MA's), (79, 39841), (82, 39862), (83, 39865), (97, 39931), (98, 39934),

Gene: Sunflower1121\_62 Start: 40147, Stop: 40437, Start Num: 49

Candidate Starts for Sunflower1121\_62:

(Start: 49 @40147 has 44 MA's), (74, 40297), (76, 40303), (90, 40384),

Gene: Syra333\_61 Start: 40168, Stop: 40458, Start Num: 49

Candidate Starts for Syra333\_61:

(Start: 49 @40168 has 44 MA's), (74, 40318), (76, 40324), (90, 40405),

Gene: TBond007\_54 Start: 39480, Stop: 39776, Start Num: 47

Candidate Starts for TBond007\_54:

(Start: 47 @39480 has 3 MA's), (Start: 49 @39483 has 44 MA's), (64, 39573), (75, 39639), (76, 39642), (92, 39729),

Gene: TClif\_58 Start: 39824, Stop: 40114, Start Num: 49

Candidate Starts for TClif\_58:

(8, 39605), (10, 39620), (17, 39641), (Start: 49 @39824 has 44 MA's), (76, 39980), (90, 40061),

Gene: TM4\_54 Start: 35905, Stop: 36183, Start Num: 50

Candidate Starts for TM4\_54:

(Start: 50 @35905 has 70 MA's), (75, 36058), (76, 36061), (90, 36142), (92, 36148),

Gene: TPA4\_45 Start: 35234, Stop: 35554, Start Num: 37

Candidate Starts for TPA4\_45:

(Start: 37 @35234 has 15 MA's), (63, 35363), (76, 35420), (86, 35477), (87, 35489), (95, 35519),

Gene: Tachez\_55 Start: 39462, Stop: 39740, Start Num: 51

Candidate Starts for Tachez\_55:

(Start: 51 @39462 has 83 MA's), (79, 39636), (82, 39657), (83, 39660), (97, 39726), (98, 39729),

Gene: TaiwanKao\_57 Start: 39764, Stop: 40042, Start Num: 51

Candidate Starts for TaiwanKao\_57:

(Start: 51 @39764 has 83 MA's), (79, 39938), (82, 39959), (83, 39962), (87, 39983), (97, 40028), (98, 40031),

Gene: Taquito\_59 Start: 40041, Stop: 40316, Start Num: 50

Candidate Starts for Taquito\_59:

(Start: 50 @40041 has 70 MA's), (54, 40059), (76, 40197), (78, 40212), (87, 40263), (92, 40284), (97, 40308),

Gene: Tarzan\_37 Start: 27063, Stop: 27356, Start Num: 46

Candidate Starts for Tarzan\_37:

(21, 26925), (Start: 46 @27063 has 7 MA's), (58, 27111), (75, 27234), (90, 27318), (91, 27321),

Gene: Teejan\_50 Start: 40358, Stop: 40645, Start Num: 49

Candidate Starts for Teejan\_50:

(Start: 49 @40358 has 44 MA's), (71, 40487), (76, 40514), (87, 40580), (96, 40619),

Gene: TelAviv\_11 Start: 4465, Stop: 4752, Start Num: 48

Candidate Starts for TelAviv\_11:

(Start: 48 @4465 has 30 MA's), (82, 4669),

Gene: Thyatira\_53 Start: 40869, Stop: 41147, Start Num: 50

Candidate Starts for Thyatira\_53:

(34, 40803), (Start: 50 @40869 has 70 MA's), (57, 40899), (75, 41022), (76, 41025), (83, 41070), (84, 41076), (94, 41118),

Gene: Tierra\_59 Start: 39965, Stop: 40255, Start Num: 49

Candidate Starts for Tierra\_59:

(42, 39944), (Start: 49 @39965 has 44 MA's), (90, 40202),

Gene: Tigress9\_64 Start: 40156, Stop: 40446, Start Num: 49

Candidate Starts for Tigress9\_64:

(44, 40141), (Start: 49 @40156 has 44 MA's), (74, 40306), (76, 40312), (90, 40393),

Gene: TingHuaYa\_56 Start: 38512, Stop: 38793, Start Num: 50

Candidate Starts for TingHuaYa\_56:

(Start: 50 @38512 has 70 MA's), (69, 38623), (79, 38689), (82, 38710), (83, 38713), (97, 38779),

Gene: TiniBug\_56 Start: 40392, Stop: 40670, Start Num: 51

Candidate Starts for TiniBug\_56:  
(Start: 51 @40392 has 83 MA's), (82, 40587), (83, 40590), (87, 40611), (96, 40650), (97, 40656),

Gene: TinyDot\_41 Start: 29174, Stop: 29467, Start Num: 45  
Candidate Starts for TinyDot\_41:  
(34, 29123), (Start: 45 @29174 has 1 MA's), (65, 29279), (70, 29303), (83, 29390), (90, 29426),

Gene: Tiri\_56 Start: 39789, Stop: 40067, Start Num: 51  
Candidate Starts for Tiri\_56:  
(Start: 51 @39789 has 83 MA's), (79, 39963), (82, 39984), (83, 39987), (97, 40053), (98, 40056),

Gene: Topper\_55 Start: 39617, Stop: 39895, Start Num: 51  
Candidate Starts for Topper\_55:  
(Start: 51 @39617 has 83 MA's), (79, 39791), (82, 39812), (83, 39815), (97, 39881), (98, 39884),

Gene: Torres\_51 Start: 40359, Stop: 40646, Start Num: 49  
Candidate Starts for Torres\_51:  
(Start: 49 @40359 has 44 MA's), (71, 40488), (76, 40515), (87, 40581), (96, 40620),

Gene: TreyKay\_56 Start: 39702, Stop: 39980, Start Num: 51  
Candidate Starts for TreyKay\_56:  
(Start: 51 @39702 has 83 MA's), (79, 39876), (82, 39897), (83, 39900), (87, 39921), (97, 39966), (98, 39969),

Gene: TribbleTrouble\_54 Start: 39704, Stop: 39988, Start Num: 49  
Candidate Starts for TribbleTrouble\_54:  
(Start: 49 @39704 has 44 MA's), (54, 39725), (75, 39860), (76, 39863), (88, 39932), (96, 39968),

Gene: Trice\_48 Start: 37746, Stop: 38033, Start Num: 49  
Candidate Starts for Trice\_48:  
(Start: 49 @37746 has 44 MA's), (71, 37875), (76, 37902), (87, 37968), (96, 38007),

Gene: TruffulaTree\_55 Start: 39493, Stop: 39771, Start Num: 51  
Candidate Starts for TruffulaTree\_55:  
(Start: 51 @39493 has 83 MA's), (79, 39667), (82, 39688), (83, 39691), (97, 39757), (98, 39760),

Gene: Twitch\_55 Start: 39619, Stop: 39897, Start Num: 51  
Candidate Starts for Twitch\_55:  
(Start: 51 @39619 has 83 MA's), (79, 39793), (82, 39814), (83, 39817), (97, 39883), (98, 39886),

Gene: Unicorn\_57 Start: 39094, Stop: 39384, Start Num: 49  
Candidate Starts for Unicorn\_57:  
(42, 39073), (Start: 49 @39094 has 44 MA's), (90, 39331),

Gene: Urkel\_56 Start: 40396, Stop: 40674, Start Num: 51  
Candidate Starts for Urkel\_56:  
(Start: 51 @40396 has 83 MA's), (82, 40591), (83, 40594), (87, 40615), (96, 40654), (97, 40660),

Gene: Vagabond\_12 Start: 4722, Stop: 5009, Start Num: 48  
Candidate Starts for Vagabond\_12:  
(Start: 48 @4722 has 30 MA's), (82, 4926),

Gene: Validus\_60 Start: 40404, Stop: 40694, Start Num: 49

Candidate Starts for Validus\_60:

(20, 40248), (Start: 49 @40404 has 44 MA's), (75, 40557), (76, 40560), (87, 40626), (94, 40653), (96, 40665), (97, 40671),

Gene: Veliki\_56 Start: 39479, Stop: 39757, Start Num: 51

Candidate Starts for Veliki\_56:

(Start: 51 @39479 has 83 MA's), (79, 39653), (82, 39674), (83, 39677), (97, 39743), (98, 39746),

Gene: ViviJ\_50 Start: 37398, Stop: 37676, Start Num: 50

Candidate Starts for ViviJ\_50:

(34, 37332), (Start: 50 @37398 has 70 MA's), (57, 37428), (59, 37437), (75, 37551), (76, 37554),

Gene: Vorrps\_12 Start: 4656, Stop: 4943, Start Num: 48

Candidate Starts for Vorrps\_12:

(Start: 48 @4656 has 30 MA's), (82, 4860), (97, 4929),

Gene: Waterfoul\_51 Start: 38770, Stop: 39048, Start Num: 50

Candidate Starts for Waterfoul\_51:

(34, 38704), (Start: 50 @38770 has 70 MA's), (57, 38800), (75, 38923), (76, 38926), (83, 38971), (94, 39019),

Gene: WheatThin\_45 Start: 33389, Stop: 33709, Start Num: 37

Candidate Starts for WheatThin\_45:

(5, 33152), (Start: 36 @33386 has 1 MA's), (Start: 37 @33389 has 15 MA's), (52, 33455), (53, 33461), (56, 33476), (90, 33668),

Gene: Wildflower\_12 Start: 4682, Stop: 4969, Start Num: 48

Candidate Starts for Wildflower\_12:

(Start: 48 @4682 has 30 MA's), (82, 4886),

Gene: Winget\_12 Start: 4721, Stop: 5008, Start Num: 48

Candidate Starts for Winget\_12:

(Start: 48 @4721 has 30 MA's), (82, 4925),

Gene: Wintermute\_60 Start: 40036, Stop: 40311, Start Num: 50

Candidate Starts for Wintermute\_60:

(Start: 50 @40036 has 70 MA's), (54, 40054), (76, 40192), (78, 40207), (87, 40258), (92, 40279), (97, 40303),

Gene: Wogge42\_12 Start: 4811, Stop: 5098, Start Num: 48

Candidate Starts for Wogge42\_12:

(Start: 48 @4811 has 30 MA's), (82, 5015),

Gene: Ximenita\_62 Start: 40165, Stop: 40455, Start Num: 49

Candidate Starts for Ximenita\_62:

(Start: 49 @40165 has 44 MA's), (74, 40315), (76, 40321), (90, 40402),

Gene: Y10\_59 Start: 39964, Stop: 40239, Start Num: 50

Candidate Starts for Y10\_59:

(Start: 50 @39964 has 70 MA's), (54, 39982), (76, 40120), (78, 40135), (87, 40186), (92, 40207), (97, 40231),

Gene: Y2\_59 Start: 39964, Stop: 40239, Start Num: 50

Candidate Starts for Y2\_59:

(Start: 50 @39964 has 70 MA's), (54, 39982), (76, 40120), (78, 40135), (87, 40186), (92, 40207), (97, 40231),

Gene: YasnayaPolyana\_60 Start: 39889, Stop: 40164, Start Num: 50

Candidate Starts for YasnayaPolyana\_60:

(Start: 50 @39889 has 70 MA's), (54, 39907), (76, 40045), (78, 40060), (87, 40111), (92, 40132), (97, 40156),

Gene: YoureAdopted\_54 Start: 39617, Stop: 39895, Start Num: 51

Candidate Starts for YoureAdopted\_54:

(Start: 51 @39617 has 83 MA's), (79, 39791), (82, 39812), (83, 39815), (97, 39881), (98, 39884),

Gene: YoyoKar\_12 Start: 4469, Stop: 4756, Start Num: 48

Candidate Starts for YoyoKar\_12:

(Start: 48 @4469 has 30 MA's), (82, 4673), (97, 4742),

Gene: Yuna\_61 Start: 40952, Stop: 41245, Start Num: 50

Candidate Starts for Yuna\_61:

(Start: 50 @40952 has 70 MA's), (90, 41189), (97, 41219),

Gene: YungJamal\_13 Start: 5022, Stop: 5309, Start Num: 48

Candidate Starts for YungJamal\_13:

(Start: 48 @5022 has 30 MA's), (82, 5226),

Gene: Yunkel11\_57 Start: 38995, Stop: 39276, Start Num: 50

Candidate Starts for Yunkel11\_57:

(Start: 33 @38932 has 1 MA's), (40, 38953), (Start: 50 @38995 has 70 MA's), (79, 39172), (82, 39193), (83, 39196), (97, 39262),

Gene: Zabiza\_50 Start: 35804, Stop: 36082, Start Num: 51

Candidate Starts for Zabiza\_50:

(Start: 51 @35804 has 83 MA's), (79, 35978), (82, 35999), (83, 36002), (97, 36068), (98, 36071),

Gene: Zakhe101\_13 Start: 5034, Stop: 5321, Start Num: 48

Candidate Starts for Zakhe101\_13:

(Start: 48 @5034 has 30 MA's), (82, 5238),

Gene: Zavala\_57 Start: 39778, Stop: 40056, Start Num: 51

Candidate Starts for Zavala\_57:

(Start: 51 @39778 has 83 MA's), (79, 39952), (82, 39973), (83, 39976), (97, 40042), (98, 40045),

Gene: Zebo\_11 Start: 4468, Stop: 4755, Start Num: 48

Candidate Starts for Zebo\_11:

(Start: 48 @4468 has 30 MA's), (82, 4672),

Gene: ZoeJ\_57 Start: 40928, Stop: 41206, Start Num: 50

Candidate Starts for ZoeJ\_57:

(Start: 50 @40928 has 70 MA's), (75, 41081), (76, 41084), (90, 41165), (92, 41171),