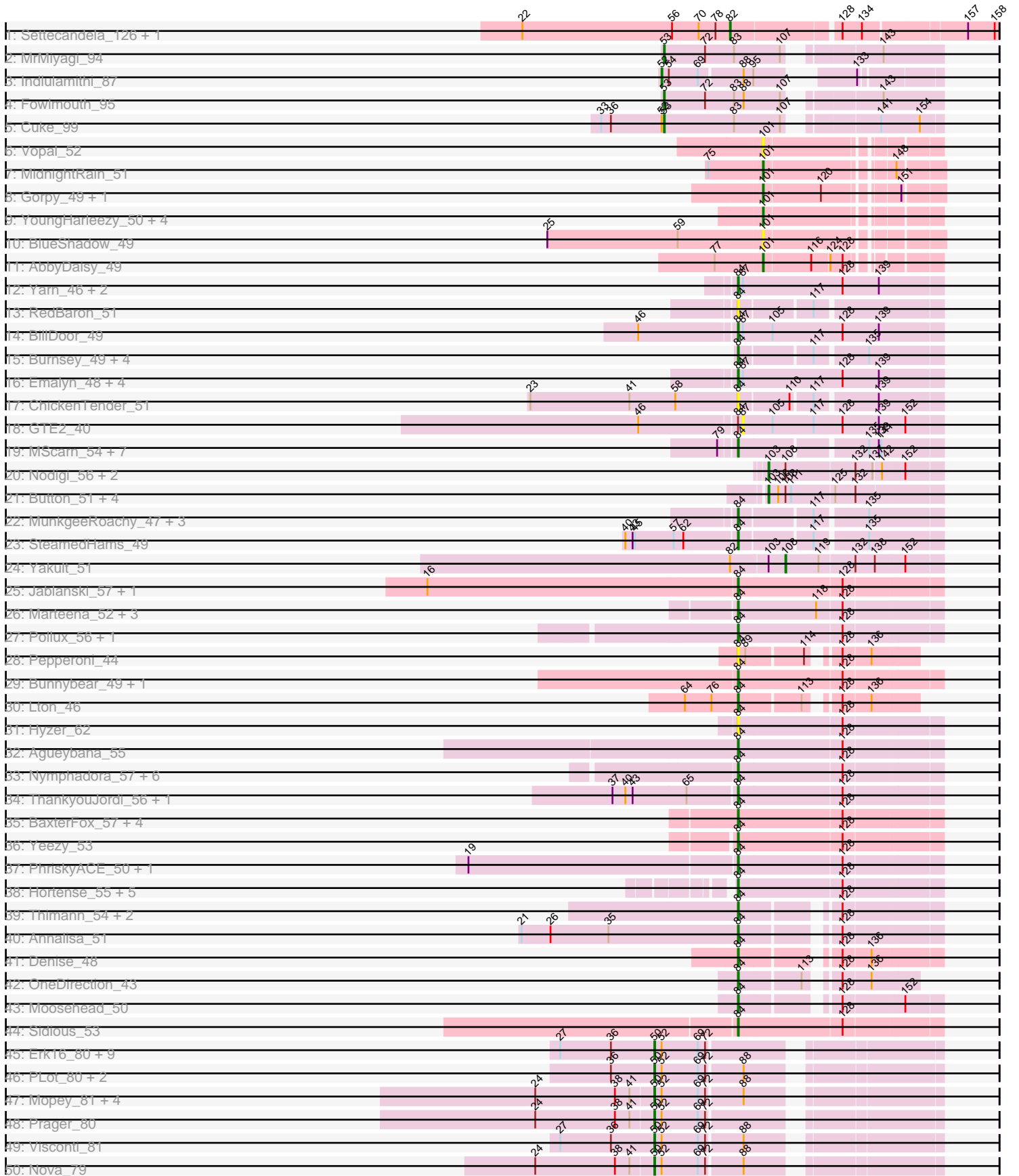
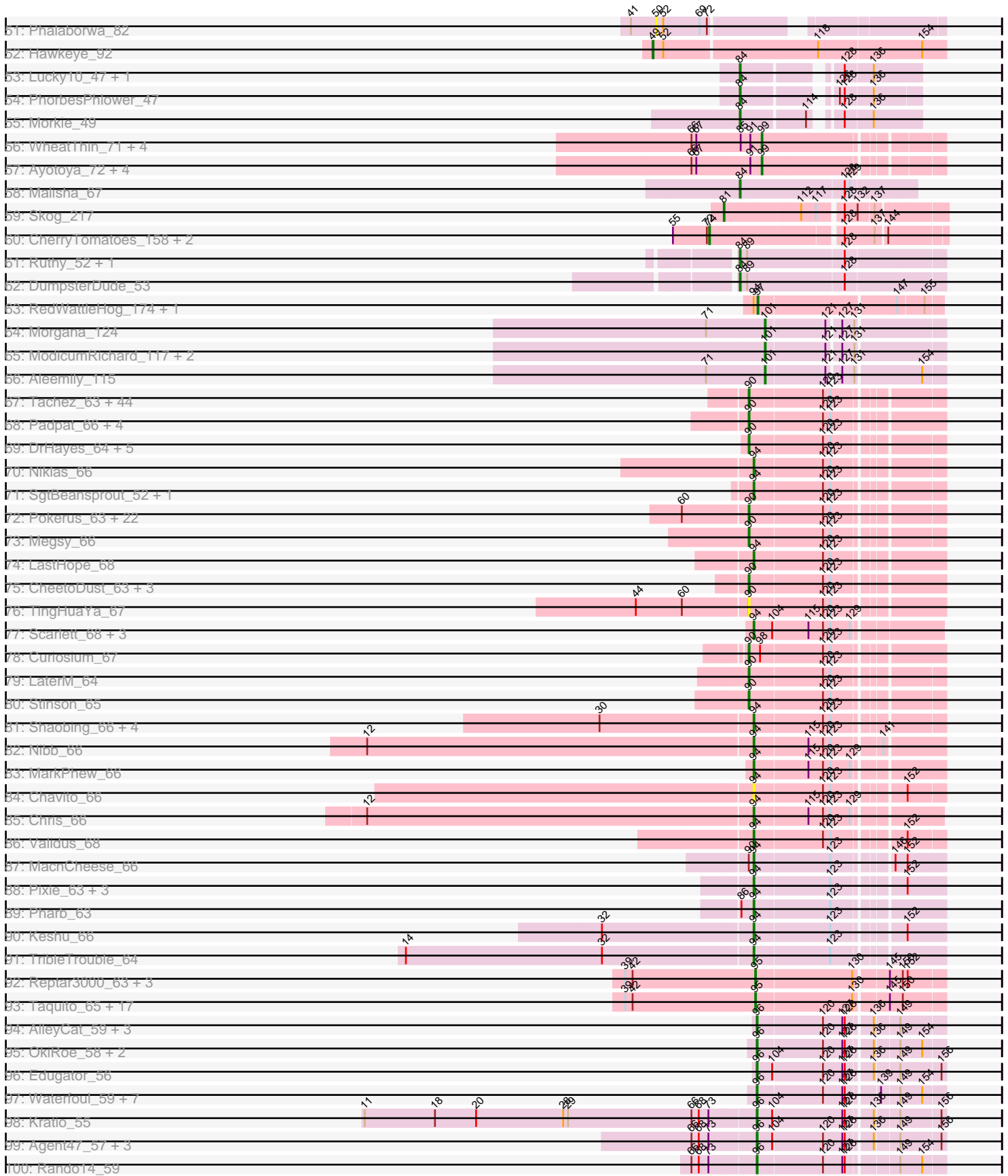


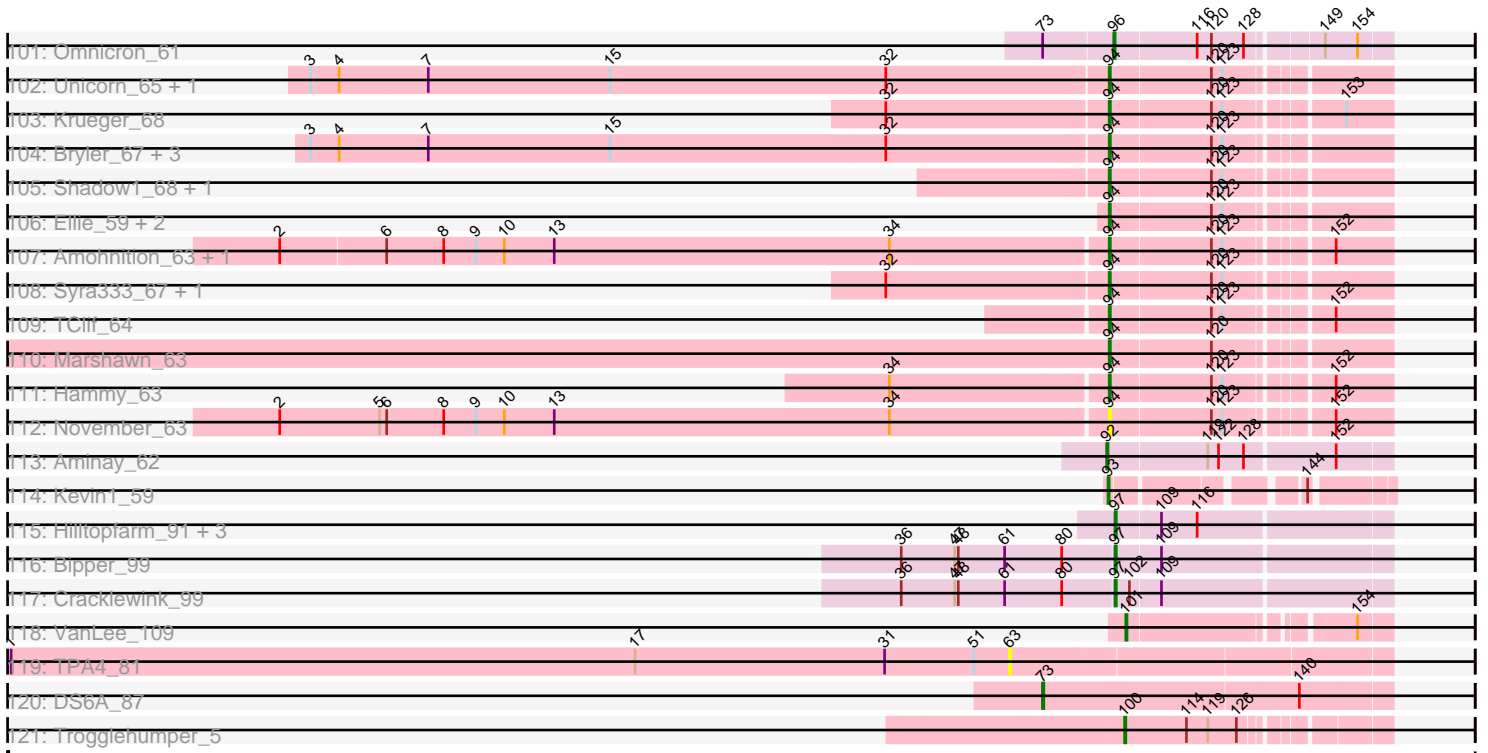
Pham 215736



# Pham 215736



Pham 215736



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 215736 Report

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

Pham number 215736 has 344 members, 36 are drafts.

Phages represented in each track:

- Track 1 : Settecandela\_126, Phrappuccino\_126
- Track 2 : MrMiyagi\_94
- Track 3 : Indlulamithi\_87
- Track 4 : Fowlmouth\_95
- Track 5 : Cuke\_99
- Track 6 : Vopal\_52
- Track 7 : MidnightRain\_51
- Track 8 : Gorpy\_49, Sakai\_48
- Track 9 : YoungHarleezy\_50, Isolde\_49, Auxilium\_46, Tiff81\_46, Raphaella\_49
- Track 10 : BlueShadow\_49
- Track 11 : AbbyDaisy\_49
- Track 12 : Yarn\_46, AndPeggy\_46, Tolls\_50
- Track 13 : RedBaron\_51
- Track 14 : BillDoor\_49
- Track 15 : Burnsey\_49, Axym\_48, Typhonmarchy\_49, Agatha\_49, Cozz\_47
- Track 16 : Emalyn\_48, Amok\_50, CanesSauce\_48, AikoCarson\_50, ChocoMunchkin\_48
- Track 17 : ChickenTender\_51
- Track 18 : GTE2\_40
- Track 19 : MScarn\_54, Troje\_52, Horseradish\_52, Buttrmlkdreams\_52, Yummy\_52, Biskit\_52, Blondies\_52, SketchMex\_50
- Track 20 : Nodigi\_56, Hexbug\_56, Orla\_56
- Track 21 : Button\_51, Jamzy\_53, Margaret\_54, RanchParmCat\_53, GiKK\_53
- Track 22 : MunkgeeRoachy\_47, Quasar\_49, Nina\_48, SweatNTears\_51
- Track 23 : SteamedHams\_49
- Track 24 : Yakult\_51
- Track 25 : Jablanski\_57, Pytheas\_57
- Track 26 : Marteena\_52, BoyNamedSue\_55, AlumE\_55, EMSquaredA\_53
- Track 27 : Pollux\_56, Floral\_54
- Track 28 : Pepperoni\_44
- Track 29 : Bunnybear\_49, Maridalia\_57
- Track 30 : Lton\_46
- Track 31 : Hyzer\_62
- Track 32 : Agueybana\_55
- Track 33 : Nymphadora\_57, TimTam\_57, Eviarto\_57, PantheRoc\_57, Hugley\_53, Herod\_55, BatStarr\_56
- Track 34 : ThankyouJordi\_56, WelcomeAyanna\_56

- Track 35 : BaxterFox\_57, Cashline\_53, Ohgeesy\_54, Ebert\_54, Madeline\_54
- Track 36 : Yeezy\_53
- Track 37 : PhriskyACE\_50, Powerball\_51
- Track 38 : Hortense\_55, Mcklovin\_51, Twinkle\_54, Adora\_52, Shlim410\_53, Howe\_55
- Track 39 : Thimann\_54, Oregano\_54, Easley\_49
- Track 40 : Annalisa\_51
- Track 41 : Denise\_48
- Track 42 : OneDirection\_43
- Track 43 : Moosehead\_50
- Track 44 : Sidious\_53
- Track 45 : Erk16\_80, Penelope2018\_80, BigMama\_78, WaldoWhy\_82, Adjutor\_78, Delton\_80, Chill\_82, Butterscotch\_78, Thoth\_80, PBI1\_76
- Track 46 : PLOT\_80, SirHarley\_82, Gumball\_80
- Track 47 : Mopey\_81, Troll4\_79, Helpful\_82, Giuseppe\_81, KandZ\_77
- Track 48 : Prager\_80
- Track 49 : Visconti\_81
- Track 50 : Nova\_79
- Track 51 : Phalaborwa\_82
- Track 52 : Hawkeye\_92
- Track 53 : Lucky10\_47, Faith5x5\_42
- Track 54 : PhorbessPhlower\_47
- Track 55 : Morkie\_49
- Track 56 : WheatThin\_71, Brylie\_71, Nadeem\_71, Mulch\_71, Parada\_71
- Track 57 : Ayotoya\_72, Hamood\_73, DelRio\_72, Chop\_73, GrandSlam\_73
- Track 58 : Malisha\_67
- Track 59 : Skog\_217
- Track 60 : CherryTomatoes\_158, SCentae\_156, Pupper\_157
- Track 61 : Ruthy\_52, ArchiDore\_53
- Track 62 : DumpsterDude\_53
- Track 63 : RedWattleHog\_174, Stormageddon\_175
- Track 64 : Morgana\_124
- Track 65 : ModicumRichard\_117, ObLaDi\_116, Cafasso\_117
- Track 66 : Aleemily\_115
- Track 67 : Tachez\_63, Blizzard\_63, Ramen\_64, Homura\_63, Rosmarinus\_63, ShiaSurprise\_64, Lunahalos\_63, ActinUp\_63, Joy99\_63, Peel\_63, Belladonna\_63, Padfoot\_63, Angelica\_63, Inky\_63, CallaLilly\_65, Jeckyll\_63, HedwigODU\_63, Geraldini\_66, BGlluviae\_63, Llorens\_63, Zabiza\_58, CaseJules\_65, Boiii\_63, Apocalypse\_66, Piatt\_63, Beezoo\_65, Asayake\_63, Ganymede\_64, BEEEST\_63, Jarvi\_63, Twitch\_63, Adephagia\_63, CREW\_63, Atiba\_64, Hyperbowlee\_63, Spock\_63, QuincyRose\_62, Durfee\_63, Sulley\_63, Tiri\_64, Adonis\_63, Topper\_63, Dalmuri\_63, Capricorn\_63, MeaningOfLife\_64
- Track 68 : Padpat\_66, Clipper\_68, Emerson\_65, MacKat\_59, Ageofdapage\_67
- Track 69 : DrHayes\_64, TiniBug\_64, Urkel\_64, Bella96\_64, SamuelLPlaqson\_64, Anaya\_66
- Track 70 : Niklas\_66
- Track 71 : SgtBeansprout\_52, LilPharaoh\_52
- Track 72 : Pokerus\_63, Zavala\_66, TreyKay\_65, Veliki\_65, Yunkel11\_68, Prithvi\_65, Devera\_71, Rapunzel97\_65, YoureAdopted\_63, TaiwanKao\_66, Murucutumbu\_65, Mynx\_65, BarrelRoll\_64, TruffulaTree\_64, BaghaKamala\_63, CrimD\_65, Dole\_69, JAWS\_64, Efra2\_69, Slimphazie\_64, LindNT\_63, Guanica15\_68, Illumine\_69
- Track 73 : Megsy\_66

- Track 74 : LastHope\_68
- Track 75 : CheetoDust\_63, Jayhawk\_65, Deby\_64, Bern\_65
- Track 76 : TingHuaYa\_67
- Track 77 : Scarlett\_68, LeMond\_67, KiSi\_68, Oscar\_67
- Track 78 : Curiosium\_67
- Track 79 : LaterM\_64
- Track 80 : Stinson\_65
- Track 81 : Shaobing\_66, McMater\_66, Peanam\_66, Richo\_66, Dartin\_66
- Track 82 : Nibb\_66
- Track 83 : MarkPhew\_66
- Track 84 : Chavito\_66
- Track 85 : Chris\_66
- Track 86 : Validus\_68
- Track 87 : MacnCheese\_66
- Track 88 : Pixie\_63, ShedlockHolmes\_65, Hurricane\_64, Lea83\_65
- Track 89 : Pharb\_63
- Track 90 : Keshu\_66
- Track 91 : TribbleTrouble\_64
- Track 92 : Reptar3000\_63, MissDaisy\_63, Bobquesha\_67, Patt\_62
- Track 93 : Taquito\_65, Slarp\_66, Mitti\_66, Kraw\_67, Juliette\_68, Chancellor\_66, OmniCritical\_65, JF1\_66, Cheetobro\_66, Ruthiejr\_67, Y10\_64, Wintermute\_66, Lebo14\_67, SamScheppers\_64, Eponine\_68, Y2\_64, Malthus\_67, Fionnbharth\_66
- Track 94 : AlleyCat\_59, Psycho\_57, Dadosky\_59, Larva\_58
- Track 95 : OkiRoe\_58, Miryou\_61, Gengar\_57
- Track 96 : Edugator\_56
- Track 97 : Waterfoul\_59, SoSeph\_58, Heftyboy\_58, Paola\_57, Guillsminger\_58, Thyatira\_60, Leston\_57, Feyre\_60
- Track 98 : Kratio\_55
- Track 99 : Agent47\_57, Collard\_55, ViviJ\_55, InvictusManeo\_55
- Track 100 : Rando14\_59
- Track 101 : Omnicron\_61
- Track 102 : Unicorn\_65, PhelpsODU\_65
- Track 103 : Krueger\_68
- Track 104 : Bryler\_67, Tierra\_67, Cain\_67, Phrank\_67
- Track 105 : Shadow1\_68, Sunflower1121\_69
- Track 106 : Ellie\_59, Fefferhead\_61, Amgine\_62
- Track 107 : Amohnition\_63, DarthP\_63
- Track 108 : Syra333\_67, Ximenita\_69
- Track 109 : TClif\_64
- Track 110 : Marshawn\_63
- Track 111 : Hammy\_63
- Track 112 : November\_63
- Track 113 : Aminay\_62
- Track 114 : Kevin1\_59
- Track 115 : Hilltopfarm\_91, AuntGwenStacy\_89, Typha\_89, Faiyaz\_89
- Track 116 : Bipper\_99
- Track 117 : Cracklewink\_99
- Track 118 : VanLee\_109
- Track 119 : TPA4\_81
- Track 120 : DS6A\_87
- Track 121 : Trogglehumper\_5

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

The start number called the most often in the published annotations is 90, it was called in 82 of the 308 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- ActinUp\_63, Adephegia\_63, Adonis\_63, Ageofdapage\_67, Anaya\_66, Angelica\_63, Apocalypse\_66, Asayake\_63, Atiba\_64, BEEST\_63, BGlluviae\_63, BaghaKamala\_63, BarrelRoll\_64, Beezoo\_65, Bella96\_64, Belladonna\_63, Bern\_65, Blizzard\_63, Boiii\_63, CREW\_63, CallaLilly\_65, Capricorn\_63, CaseJules\_65, CheetoDust\_63, Clipper\_68, CrimD\_65, Curiosium\_67, Dalmuri\_63, Deby\_64, Devera\_71, Dole\_69, DrHayes\_64, Durfee\_63, Efra2\_69, Emerson\_65, Ganymede\_64, Geraldini\_66, Guanica15\_68, HedwigODU\_63, Homura\_63, Hyperbowlee\_63, Illumine\_69, Inky\_63, JAWS\_64, Jarvi\_63, Jayhawk\_65, Jeckyll\_63, Joy99\_63, LaterM\_64, LindNT\_63, Llorens\_63, Lunahalos\_63, MacKat\_59, MeaningOfLife\_64, Megsy\_66, Murucutumbu\_65, Mynx\_65, Padfoot\_63, Padpat\_66, Peel\_63, Piatt\_63, Pokerus\_63, Prithvi\_65, QuincyRose\_62, Ramen\_64, Rapunzel97\_65, Rosmarinus\_63, SamuelLPlaqson\_64, ShiaSurprise\_64, Slimphazie\_64, Spock\_63, Stinson\_65, Sulley\_63, Tachez\_63, TaiwanKao\_66, TingHuaYa\_67, TiniBug\_64, Tiri\_64, Topper\_63, TreyKay\_65, TruffulaTree\_64, Twitch\_63, Urkel\_64, Veliki\_65, YoureAdopted\_63, Yunkel11\_68, Zabiza\_58, Zavala\_66,

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

- MacnCheese\_66,

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

- AbbyDaisy\_49, Adjutor\_78, Adora\_52, Agatha\_49, Agent47\_57, Agueybana\_55, AikoCarson\_50, Aleemily\_115, AlleyCat\_59, AlumE\_55, Amgine\_62, Aminay\_62, Amohnition\_63, Amok\_50, AndPeggy\_46, Annalisa\_51, ArchiDore\_53, AuntGwenStacy\_89, Auxilium\_46, Axym\_48, Ayotoya\_72, BatStarr\_56, BaxterFox\_57, BigMama\_78, BillDoor\_49, Bipper\_99, Biskit\_52, Blondies\_52, BlueShadow\_49, Bobquesha\_67, BoyNamedSue\_55, Bryler\_67, Brylie\_71, Bunnybear\_49, Burnsey\_49, Butterscotch\_78, Button\_51, Buttrmlkdreams\_52, Cafasso\_117, Cain\_67, CanesSauce\_48, Cashline\_53, Chancellor\_66, Chavito\_66, Cheetobro\_66, CherryTomatoes\_158, ChickenTender\_51, Chill\_82, ChocoMunchkin\_48, Chop\_73, Chris\_66, Collard\_55, Cozz\_47, Cracklewink\_99, Cuke\_99, DS6A\_87, Dadosky\_59, DarthP\_63, Dartin\_66, DelRio\_72, Delton\_80, Denise\_48, DumpsterDude\_53, EMSquaredA\_53, Easley\_49, Ebert\_54, Edugator\_56, Ellie\_59, Emalyn\_48, Eponine\_68, Erk16\_80, Eviarto\_57, Faith5x5\_42, Faiyaz\_89, Fefferhead\_61, Feyre\_60, Fionnbharth\_66, Floral\_54, Fowlmouth\_95, GTE2\_40, Gengar\_57, GiKK\_53, Giuseppe\_81, Gorpy\_49, GrandSlam\_73, Guillsminger\_58, Gumball\_80, Hammy\_63, Hamood\_73, Hawkeye\_92, Heftyboy\_58, Helpful\_82, Herod\_55, Hexbug\_56, Hilltopfarm\_91, Horseradish\_52, Hortense\_55, Howe\_55, Hugley\_53, Hurricane\_64, Hyzer\_62, Indlulamithi\_87, InvictusManeo\_55, Isolde\_49, JF1\_66, Jablanski\_57, Jamzy\_53, Juliette\_68, KandZ\_77, Keshu\_66, Kevin1\_59, KiSi\_68, Kratio\_55, Kraw\_67, Krueger\_68, Larva\_58, LastHope\_68, LeMond\_67, Lea83\_65, Lebo14\_67, Leston\_57, LilPharaoh\_52, Lton\_46, Lucky10\_47, MScarn\_54, Madeline\_54, Malisha\_67, Malthus\_67, Margaret\_54, Maridalia\_57, MarkPhew\_66, Marshawn\_63, Marteena\_52, McMater\_66, Mcklovin\_51, MidnightRain\_51, Miryou\_61, MissDaisy\_63, Mitti\_66, ModicumRichard\_117, Moosehead\_50, Mopey\_81, Morgana\_124, Morkie\_49,

MrMiyagi\_94, Mulch\_71, MunkgeeRoachy\_47, Nadeem\_71, Nibb\_66, Niklas\_66, Nina\_48, Nodigi\_56, Nova\_79, November\_63, Nymphadora\_57, ObLaDi\_116, Ohgeesy\_54, OkiRoe\_58, OmniCritical\_65, Omnicron\_61, OneDirection\_43, Oregano\_54, Orla\_56, Oscar\_67, PBI1\_76, PLOT\_80, PantheRoc\_57, Paola\_57, Parada\_71, Patt\_62, Peanam\_66, Penelope2018\_80, Pepperoni\_44, Phalaborwa\_82, Pharb\_63, PhelpsODU\_65, PhorbesPhlower\_47, Phrank\_67, Phrappuccino\_126, PhriskyACE\_50, Pixie\_63, Pollux\_56, Powerball\_51, Prager\_80, Psycho\_57, Pupper\_157, Pytheas\_57, Quasar\_49, RanchParmCat\_53, Rando14\_59, Raphaella\_49, RedBaron\_51, RedWattleHog\_174, Reptar3000\_63, Richo\_66, Ruthiejr\_67, Ruthy\_52, SCentae\_156, Sakai\_48, SamScheppers\_64, Scarlett\_68, Settecandela\_126, SgtBeansprout\_52, Shadow1\_68, Shaobing\_66, ShedlockHolmes\_65, Shlim410\_53, Sidious\_53, SirHarley\_82, SketchMex\_50, Skog\_217, Slarp\_66, SoSeph\_58, SteamedHams\_49, Stormageddon\_175, Sunflower1121\_69, SweatNTears\_51, Syra333\_67, TClif\_64, TPA4\_81, Taquito\_65, ThankyouJordi\_56, Thimann\_54, Thoth\_80, Thyatira\_60, Tierra\_67, Tiff81\_46, TimTam\_57, Tolls\_50, TribbleTrouble\_64, Trogglehumper\_5, Troje\_52, Troll4\_79, Twinkle\_54, Typha\_89, Typhonmarchy\_49, Unicorn\_65, Validus\_68, VanLee\_109, Visconti\_81, ViviJ\_55, Vopal\_52, WaldoWhy\_82, Waterfoul\_59, WelcomeAyanna\_56, WheatThin\_71, Wintermute\_66, Ximenita\_69, Y10\_64, Y2\_64, Yakult\_51, Yarn\_46, Yeezy\_53, YoungHarleezy\_50, Yummy\_52,

### Summary by start number:

#### Start 49:

- Found in 1 of 344 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 308
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Hawkeye\_92 (D2),

#### Start 50:

- Found in 22 of 344 ( 6.4% ) of genes in pham
- Manual Annotations of this start: 21 of 308
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Adjutor\_78 (D1), BigMama\_78 (D1), Butterscotch\_78 (D1), Chill\_82 (D1), Delton\_80 (D1), Erk16\_80 (D1), Giuseppe\_81 (D1), Gumball\_80 (D1), Helpful\_82 (D1), KandZ\_77 (D1), Mopey\_81 (D1), Nova\_79 (D1), PBI1\_76 (D1), PLOT\_80 (D1), Penelope2018\_80 (D1), Phalaborwa\_82 (D1), Prager\_80 (D1), SirHarley\_82 (D1), Thoth\_80 (D1), Troll4\_79 (D1), Visconti\_81 (D1), WaldoWhy\_82 (D1),

#### Start 52:

- Found in 25 of 344 ( 7.3% ) of genes in pham
- Manual Annotations of this start: 1 of 308
- Called 4.0% of time when present
- Phage (with cluster) where this start called: Indlulamithi\_87 (AC),

#### Start 53:

- Found in 3 of 344 ( 0.9% ) of genes in pham
- Manual Annotations of this start: 3 of 308
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Cuke\_99 (AC), Fowlmouth\_95 (AC), MrMiyagi\_94 (AC),



Start 63:

- Found in 1 of 344 ( 0.3% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: TPA4\_81 (singleton),

Start 73:

- Found in 8 of 344 ( 2.3% ) of genes in pham
- Manual Annotations of this start: 1 of 308
- Called 12.5% of time when present
- Phage (with cluster) where this start called: DS6A\_87 (singleton),

Start 74:

- Found in 3 of 344 ( 0.9% ) of genes in pham
- Manual Annotations of this start: 3 of 308
- Called 100.0% of time when present
- Phage (with cluster) where this start called: CherryTomatoes\_158 (DO), Pupper\_157 (DO), SCentae\_156 (DO),

Start 81:

- Found in 1 of 344 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 308
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Skog\_217 (DO),

Start 82:

- Found in 3 of 344 ( 0.9% ) of genes in pham
- Manual Annotations of this start: 2 of 308
- Called 66.7% of time when present
- Phage (with cluster) where this start called: Phrappuccino\_126 (AA), Settecandela\_126 (AA),

Start 84:

- Found in 83 of 344 ( 24.1% ) of genes in pham
- Manual Annotations of this start: 71 of 308
- Called 98.8% of time when present
- Phage (with cluster) where this start called: Adora\_52 (CZ4), Agatha\_49 (CT), Agueybana\_55 (CZ1), AikoCarson\_50 (CT), AlumE\_55 (CZ1), Amok\_50 (CT), AndPeggy\_46 (CT), Annalisa\_51 (CZ4), ArchiDore\_53 (DW), Axym\_48 (CT), BatStarr\_56 (CZ1), BaxterFox\_57 (CZ3), BillDoor\_49 (CT), Biskit\_52 (CT), Blondies\_52 (CT), BoyNamedSue\_55 (CZ1), Bunnybear\_49 (CZ), Burnsey\_49 (CT), Buttrmlkdreams\_52 (CT), CanesSauce\_48 (CT), Cashline\_53 (CY), ChickenTender\_51 (CT), ChocoMunchkin\_48 (CT), Cozz\_47 (CT), Denise\_48 (CZ5), DumpsterDude\_53 (DW), EMsquaredA\_53 (CY1), Easley\_49 (CZ4), Ebert\_54 (CZ2), Emalyn\_48 (CT), Eviarto\_57 (CZ1), Faith5x5\_42 (CZ6), Floral\_54 (CY1), Herod\_55 (CZ1), Horseradish\_52 (CT), Hortense\_55 (CZ4), Howe\_55 (CZ4), Hugley\_53 (CZ1), Hyzer\_62 (CZ1), Jablanski\_57 (CY), Lton\_46 (CZ), Lucky10\_47 (DH), MScarn\_54 (CT), Madeline\_54 (CZ1), Malisha\_67 (DN), Maridalia\_57 (CZ1), Marteenaa\_52 (CY1), Mcklovin\_51 (CZ4), Moosehead\_50 (CZ6), Morkie\_49 (DH), MunkgeeRoachy\_47 (CT), Nina\_48 (CT), Nymphadora\_57 (CZ1), Ohgeesy\_54 (CZ), OneDirection\_43 (CZ6), Oregano\_54 (CZ4), PantheRoc\_57 (CZ3), Pepperoni\_44 (CZ), PhorbesPhlower\_47 (DH), PhriskyACE\_50 (CZ4), Pollux\_56 (CY1), Powerball\_51 (CZ4), Pytheas\_57 (CY), Quasar\_49 (CT), RedBaron\_51 (CT), Ruthy\_52 (DW),

Shlim410\_53 (CZ4), Sidious\_53 (CZ7), SketchMex\_50 (CT), SteamedHams\_49 (CT), SweatNTears\_51 (CT), ThankyouJordi\_56 (CZ1), Thimann\_54 (CZ4), TimTam\_57 (CZ1), Tolls\_50 (CT), Troje\_52 (CT), Twinkle\_54 (CZ4), Typhonmachy\_49 (CT), WelcomeAyanna\_56 (CZ1), Yarn\_46 (CT), Yeezy\_53 (CZ3), Yummy\_52 (CT),

Start 87:

- Found in 10 of 344 ( 2.9% ) of genes in pham
- No Manual Annotations of this start.
- Called 10.0% of time when present
- Phage (with cluster) where this start called: GTE2\_40 (CT),

Start 90:

- Found in 89 of 344 ( 25.9% ) of genes in pham
- Manual Annotations of this start: 82 of 308
- Called 98.9% of time when present
- Phage (with cluster) where this start called: ActinUp\_63 (K1), Adephegia\_63 (K1), Adonis\_63 (K1), Ageofdapage\_67 (K1), Anaya\_66 (K1), Angelica\_63 (K1), Apocalypse\_66 (K1), Asayake\_63 (K1), Atiba\_64 (K1), BEEST\_63 (K1), BGIlluviae\_63 (K1), BaghaKamala\_63 (K1), BarrelRoll\_64 (K1), Beezoo\_65 (K1), Bella96\_64 (K1), Belladonna\_63 (K1), Bern\_65 (K1), Blizzard\_63 (K1), Boiii\_63 (K1), CREW\_63 (K1), CallaLilly\_65 (K1), Capricorn\_63 (K1), CaseJules\_65 (K1), CheetoDust\_63 (K1), Clipper\_68 (K1), CrimD\_65 (K1), Curiosium\_67 (K1), Dalmuri\_63 (K1), Deby\_64 (K1), Devera\_71 (K1), Dole\_69 (K1), DrHayes\_64 (K1), Durfee\_63 (K1), Efra2\_69 (K1), Emerson\_65 (K1), Ganymede\_64 (K1), Geraldini\_66 (K1), Guanica15\_68 (K1), HedwigODU\_63 (K1), Homura\_63 (K1), Hyperbowlee\_63 (K1), Illumine\_69 (K1), Inky\_63 (K1), JAWS\_64 (K1), Jarvi\_63 (K1), Jayhawk\_65 (K1), Jeckyll\_63 (K1), Joy99\_63 (K1), LaterM\_64 (K1), LindNT\_63 (K1), Llorens\_63 (K1), Lunahalos\_63 (K1), MacKat\_59 (K1), MeaningOfLife\_64 (K1), Megsy\_66 (K1), Murucutumbu\_65 (K1), Mynx\_65 (K1), Padfoot\_63 (K1), Padpat\_66 (K1), Peel\_63 (K1), Piatt\_63 (K1), Pokerus\_63 (K1), Prithvi\_65 (K1), QuincyRose\_62 (K1), Ramen\_64 (K1), Rapunzel97\_65 (K1), Rosmarinus\_63 (K1), SamuelLPlaqson\_64 (K1), ShiaSurprise\_64 (K1), Slimphazie\_64 (K1), Spock\_63 (K1), Stinson\_65 (K1), Sulley\_63 (K1), Tachez\_63 (K1), TaiwanKao\_66 (K1), TingHuaYa\_67 (K1), TiniBug\_64 (K1), Tiri\_64 (K1), Topper\_63 (K1), TreyKay\_65 (K1), TruffulaTree\_64 (K1), Twitch\_63 (K1), Urkel\_64 (K1), Veliki\_65 (K1), YoureAdopted\_63 (K1), Yunkel11\_68 (K1), Zabiza\_58 (K1), Zavala\_66 (K1),

Start 92:

- Found in 1 of 344 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 308
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aminay\_62 (K7),

Start 93:

- Found in 1 of 344 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 308
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Kevin1\_59 (N),

Start 94:

- Found in 48 of 344 ( 14.0% ) of genes in pham
- Manual Annotations of this start: 40 of 308
- Called 95.8% of time when present

- Phage (with cluster) where this start called: Amgine\_62 (K6), Amohnition\_63 (K6), Bryler\_67 (K6), Cain\_67 (K6), Chavito\_66 (K1), Chris\_66 (K1), DarthP\_63 (K6), Dartin\_66 (K1), Ellie\_59 (K6), Fefferhead\_61 (K6), Hammy\_63 (K6), Hurricane\_64 (K3), Keshu\_66 (K3), KiSi\_68 (K1), Krueger\_68 (K6), LastHope\_68 (K1), LeMond\_67 (K1), Lea83\_65 (K3), LilPharaoh\_52 (K1), MacnCheese\_66 (K3), MarkPhew\_66 (K1), Marshawn\_63 (K6), McMater\_66 (K1), Nibb\_66 (K1), Niklas\_66 (K1), November\_63 (K6), Oscar\_67 (K1), Peanam\_66 (K1), Pharb\_63 (K3), PhelpsODU\_65 (K6), Phrank\_67 (K6), Pixie\_63 (K3), Richo\_66 (K1), Scarlett\_68 (K1), SgtBeansprout\_52 (K1), Shadow1\_68 (K6), Shaobing\_66 (K1), ShedlockHolmes\_65 (K3), Sunflower1121\_69 (K6), Syra333\_67 (K6), TClif\_64 (K6), Tierra\_67 (K6), TribbleTrouble\_64 (K3), Unicorn\_65 (K6), Validus\_68 (K1), Ximenita\_69 (K6),

#### Start 95:

- Found in 23 of 344 ( 6.7% ) of genes in pham
- Manual Annotations of this start: 19 of 308
- Called 95.7% of time when present
- Phage (with cluster) where this start called: Bobquesha\_67 (K4), Chancellor\_66 (K4), Cheetobro\_66 (K4), Eponine\_68 (K4), Fionnbharth\_66 (K4), JF1\_66 (K4), Juliette\_68 (K4), Kraw\_67 (K4), Lebo14\_67 (K4), Malthus\_67 (K4), MissDaisy\_63 (K4), Mitti\_66 (K4), OmniCritical\_65 (K4), Patt\_62 (K4), Reptar3000\_63 (K4), Ruthiejr\_67 (K4), SamScheppers\_64 (K4), Slarp\_66 (K4), Taquito\_65 (K4), Wintermute\_66 (K4), Y10\_64 (K4), Y2\_64 (K4),

#### Start 96:

- Found in 23 of 344 ( 6.7% ) of genes in pham
- Manual Annotations of this start: 22 of 308
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Agent47\_57 (K5), AlleyCat\_59 (K5), Collard\_55 (K5), Dadosky\_59 (K5), Edugator\_56 (K5), Feyre\_60 (K5), Gengar\_57 (K5), Guillsminger\_58 (K5), Heftyboy\_58 (K5), InvictusManeo\_55 (K5), Kratio\_55 (K5), Larva\_58 (K5), Leston\_57 (K5), Miryou\_61 (K5), OkiRoe\_58 (K5), Omnicron\_61 (K5), Paola\_57 (K5), Psycho\_57 (K5), Rando14\_59 (K5), SoSeph\_58 (K5), Thyatira\_60 (K5), ViviJ\_55 (K5), Waterfoul\_59 (K5),

#### Start 97:

- Found in 8 of 344 ( 2.3% ) of genes in pham
- Manual Annotations of this start: 6 of 308
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AuntGwenStacy\_89 (Y), Bipper\_99 (Y), Cracklewink\_99 (Y), Faiyaz\_89 (Y), Hilltopfarm\_91 (Y), RedWattleHog\_174 (DX), Stormageddon\_175 (DX), Typha\_89 (Y),

#### Start 99:

- Found in 10 of 344 ( 2.9% ) of genes in pham
- Manual Annotations of this start: 10 of 308
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ayotoya\_72 (DI), Bryllie\_71 (DI), Chop\_73 (DI), DelRio\_72 (DI), GrandSlam\_73 (DI), Hamood\_73 (DI), Mulch\_71 (DI), Nadeem\_71 (DI), Parada\_71 (DI), WheatThin\_71 (DI),

#### Start 100:

- Found in 1 of 344 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 308

- Called 100.0% of time when present
- Phage (with cluster) where this start called: Trogglehumper\_5 (singleton),

#### Start 101:

- Found in 17 of 344 ( 4.9% ) of genes in pham
- Manual Annotations of this start: 13 of 308
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AbbyDaisy\_49 (AY), Aleemily\_115 (DZ), Auxilium\_46 (AY), BlueShadow\_49 (AY), Cafasso\_117 (DZ), Gorpy\_49 (AY), Isolde\_49 (AY), MidnightRain\_51 (AY), ModicumRichard\_117 (DZ), Morgana\_124 (DZ), ObLaDi\_116 (DZ), Raphaella\_49 (AY), Sakai\_48 (AY), Tiff81\_46 (AY), VanLee\_109 (singleton), Vopal\_52 (AY), YoungHarleezy\_50 (AY),

#### Start 103:

- Found in 9 of 344 ( 2.6% ) of genes in pham
- Manual Annotations of this start: 8 of 308
- Called 88.9% of time when present
- Phage (with cluster) where this start called: Button\_51 (CT), GiKK\_53 (CT), Hexbug\_56 (CT), Jamzy\_53 (CT), Margaret\_54 (CT), Nodigi\_56 (CT), Orla\_56 (CT), RanchParmCat\_53 (CT),

#### Start 108:

- Found in 9 of 344 ( 2.6% ) of genes in pham
- Manual Annotations of this start: 1 of 308
- Called 11.1% of time when present
- Phage (with cluster) where this start called: Yakult\_51 (CT),

### Summary by clusters:

There are 32 clusters represented in this pham: DN, DO, singleton, DX, DH, DI, CZ2, CZ3, CZ1, CZ6, CY1, CZ4, CZ5, K3, Y, K1, DZ, K6, K5, K4, DW, AA, AC, CZ7, CZ, CY, AY, N, CT, K7, D2, D1,

Info for manual annotations of cluster AA:

- Start number 82 was manually annotated 2 times for cluster AA.

Info for manual annotations of cluster AC:

- Start number 52 was manually annotated 1 time for cluster AC.
- Start number 53 was manually annotated 3 times for cluster AC.

Info for manual annotations of cluster AY:

- Start number 101 was manually annotated 8 times for cluster AY.

Info for manual annotations of cluster CT:

- Start number 84 was manually annotated 23 times for cluster CT.
- Start number 103 was manually annotated 8 times for cluster CT.
- Start number 108 was manually annotated 1 time for cluster CT.

Info for manual annotations of cluster CY:

- Start number 84 was manually annotated 3 times for cluster CY.

Info for manual annotations of cluster CY1:

- Start number 84 was manually annotated 4 times for cluster CY1.

Info for manual annotations of cluster CZ:

- Start number 84 was manually annotated 3 times for cluster CZ.

Info for manual annotations of cluster CZ1:

- Start number 84 was manually annotated 12 times for cluster CZ1.

Info for manual annotations of cluster CZ2:

- Start number 84 was manually annotated 1 time for cluster CZ2.

Info for manual annotations of cluster CZ3:

- Start number 84 was manually annotated 3 times for cluster CZ3.

Info for manual annotations of cluster CZ4:

- Start number 84 was manually annotated 11 times for cluster CZ4.

Info for manual annotations of cluster CZ5:

- Start number 84 was manually annotated 1 time for cluster CZ5.

Info for manual annotations of cluster CZ6:

- Start number 84 was manually annotated 3 times for cluster CZ6.

Info for manual annotations of cluster CZ7:

- Start number 84 was manually annotated 1 time for cluster CZ7.

Info for manual annotations of cluster D1:

- Start number 50 was manually annotated 21 times for cluster D1.

Info for manual annotations of cluster D2:

- Start number 49 was manually annotated 1 time for cluster D2.

Info for manual annotations of cluster DH:

- Start number 84 was manually annotated 3 times for cluster DH.

Info for manual annotations of cluster DI:

- Start number 99 was manually annotated 10 times for cluster DI.

Info for manual annotations of cluster DN:

- Start number 84 was manually annotated 1 time for cluster DN.

Info for manual annotations of cluster DO:

- Start number 74 was manually annotated 3 times for cluster DO.
- Start number 81 was manually annotated 1 time for cluster DO.

Info for manual annotations of cluster DW:

- Start number 84 was manually annotated 2 times for cluster DW.

Info for manual annotations of cluster DX:

- Start number 97 was manually annotated 2 times for cluster DX.

Info for manual annotations of cluster DZ:

- Start number 101 was manually annotated 4 times for cluster DZ.

Info for manual annotations of cluster K1:

- Start number 90 was manually annotated 82 times for cluster K1.
- Start number 94 was manually annotated 14 times for cluster K1.

Info for manual annotations of cluster K3:

- Start number 94 was manually annotated 7 times for cluster K3.

Info for manual annotations of cluster K4:

- Start number 95 was manually annotated 19 times for cluster K4.

Info for manual annotations of cluster K5:

- Start number 96 was manually annotated 22 times for cluster K5.

Info for manual annotations of cluster K6:

- Start number 94 was manually annotated 19 times for cluster K6.

Info for manual annotations of cluster K7:

- Start number 92 was manually annotated 1 time for cluster K7.

Info for manual annotations of cluster N:

- Start number 93 was manually annotated 1 time for cluster N.

Info for manual annotations of cluster Y:

- Start number 97 was manually annotated 4 times for cluster Y.

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

Gene: AbbyDaisy\_49 Start: 31179, Stop: 31364, Start Num: 101

Candidate Starts for AbbyDaisy\_49:

(77, 31122), (Start: 101 @31179 has 13 MA's), (116, 31236), (124, 31257), (128, 31272),

Gene: ActinUp\_63 Start: 42440, Stop: 42655, Start Num: 90

Candidate Starts for ActinUp\_63:

(Start: 90 @42440 has 82 MA's), (120, 42527), (123, 42536),

Gene: Adephagia\_63 Start: 42477, Stop: 42692, Start Num: 90

Candidate Starts for Adephagia\_63:

(Start: 90 @42477 has 82 MA's), (120, 42564), (123, 42573),

Gene: Adjutor\_78 Start: 58520, Stop: 58834, Start Num: 50

Candidate Starts for Adjutor\_78:

(27, 58403), (36, 58466), (Start: 50 @58520 has 21 MA's), (Start: 52 @58529 has 1 MA's), (69, 58574), (72, 58583),

Gene: Adonis\_63 Start: 42712, Stop: 42927, Start Num: 90

Candidate Starts for Adonis\_63:

(Start: 90 @42712 has 82 MA's), (120, 42799), (123, 42808),

Gene: Adora\_52 Start: 38735, Stop: 38977, Start Num: 84

Candidate Starts for Adora\_52:

(Start: 84 @38735 has 71 MA's), (128, 38861),

Gene: Agatha\_49 Start: 36030, Stop: 35797, Start Num: 84  
Candidate Starts for Agatha\_49:  
(Start: 84 @36030 has 71 MA's), (117, 35946), (135, 35886),

Gene: Agent47\_57 Start: 39612, Stop: 39824, Start Num: 96  
Candidate Starts for Agent47\_57:  
(66, 39537), (68, 39546), (Start: 73 @39558 has 1 MA's), (Start: 96 @39612 has 22 MA's), (104, 39630), (120, 39690), (127, 39714), (128, 39717), (136, 39744), (149, 39771), (156, 39819),

Gene: Ageofdapage\_67 Start: 43868, Stop: 44083, Start Num: 90  
Candidate Starts for Ageofdapage\_67:  
(Start: 90 @43868 has 82 MA's), (120, 43955), (123, 43964),

Gene: Agueybana\_55 Start: 39414, Stop: 39656, Start Num: 84  
Candidate Starts for Agueybana\_55:  
(Start: 84 @39414 has 71 MA's), (128, 39540),

Gene: AikoCarson\_50 Start: 36349, Stop: 36098, Start Num: 84  
Candidate Starts for AikoCarson\_50:  
(Start: 84 @36349 has 71 MA's), (87, 36343), (128, 36220), (139, 36175),

Gene: Aleemily\_115 Start: 64180, Stop: 63974, Start Num: 101  
Candidate Starts for Aleemily\_115:  
(71, 64249), (Start: 101 @64180 has 13 MA's), (121, 64108), (127, 64093), (131, 64078), (154, 64000),

Gene: AlleyCat\_59 Start: 39910, Stop: 40122, Start Num: 96  
Candidate Starts for AlleyCat\_59:  
(Start: 96 @39910 has 22 MA's), (120, 39988), (127, 40012), (128, 40015), (136, 40042), (149, 40069),

Gene: AlumE\_55 Start: 39196, Stop: 39438, Start Num: 84  
Candidate Starts for AlumE\_55:  
(Start: 84 @39196 has 71 MA's), (118, 39292), (128, 39322),

Gene: Amgine\_62 Start: 43547, Stop: 43759, Start Num: 94  
Candidate Starts for Amgine\_62:  
(Start: 94 @43547 has 40 MA's), (120, 43628), (123, 43637),

Gene: Aminay\_62 Start: 41845, Stop: 42069, Start Num: 92  
Candidate Starts for Aminay\_62:  
(Start: 92 @41845 has 1 MA's), (119, 41926), (122, 41935), (128, 41956), (152, 42025),

Gene: Amohnition\_63 Start: 43082, Stop: 43294, Start Num: 94  
Candidate Starts for Amohnition\_63:  
(2, 42395), (6, 42482), (8, 42530), (9, 42557), (10, 42581), (13, 42623), (34, 42905), (Start: 94 @43082 has 40 MA's), (120, 43163), (123, 43172), (152, 43247),

Gene: Amok\_50 Start: 36274, Stop: 36023, Start Num: 84  
Candidate Starts for Amok\_50:  
(Start: 84 @36274 has 71 MA's), (87, 36268), (128, 36145), (139, 36100),

Gene: Anaya\_66 Start: 43420, Stop: 43638, Start Num: 90  
Candidate Starts for Anaya\_66:

(Start: 90 @43420 has 82 MA's), (120, 43507), (123, 43516),

Gene: AndPeggy\_46 Start: 35560, Stop: 35309, Start Num: 84

Candidate Starts for AndPeggy\_46:

(Start: 84 @35560 has 71 MA's), (87, 35554), (128, 35431), (139, 35386),

Gene: Angelica\_63 Start: 42629, Stop: 42844, Start Num: 90

Candidate Starts for Angelica\_63:

(Start: 90 @42629 has 82 MA's), (120, 42716), (123, 42725),

Gene: Annalisa\_51 Start: 35580, Stop: 35795, Start Num: 84

Candidate Starts for Annalisa\_51:

(21, 35316), (26, 35352), (35, 35424), (Start: 84 @35580 has 71 MA's), (128, 35679),

Gene: Apocalypse\_66 Start: 43395, Stop: 43610, Start Num: 90

Candidate Starts for Apocalypse\_66:

(Start: 90 @43395 has 82 MA's), (120, 43482), (123, 43491),

Gene: ArchiDore\_53 Start: 39524, Stop: 39766, Start Num: 84

Candidate Starts for ArchiDore\_53:

(Start: 84 @39524 has 71 MA's), (89, 39533), (128, 39650),

Gene: Asayake\_63 Start: 42792, Stop: 43007, Start Num: 90

Candidate Starts for Asayake\_63:

(Start: 90 @42792 has 82 MA's), (120, 42879), (123, 42888),

Gene: Atiba\_64 Start: 42440, Stop: 42655, Start Num: 90

Candidate Starts for Atiba\_64:

(Start: 90 @42440 has 82 MA's), (120, 42527), (123, 42536),

Gene: AuntGwenStacy\_89 Start: 58871, Stop: 59092, Start Num: 97

Candidate Starts for AuntGwenStacy\_89:

(Start: 97 @58871 has 6 MA's), (109, 58907), (116, 58937),

Gene: Auxilium\_46 Start: 28442, Stop: 28633, Start Num: 101

Candidate Starts for Auxilium\_46:

(Start: 101 @28442 has 13 MA's),

Gene: Axym\_48 Start: 35927, Stop: 35694, Start Num: 84

Candidate Starts for Axym\_48:

(Start: 84 @35927 has 71 MA's), (117, 35843), (135, 35783),

Gene: Ayotoya\_72 Start: 48939, Stop: 49139, Start Num: 99

Candidate Starts for Ayotoya\_72:

(66, 48855), (67, 48861), (91, 48927), (Start: 99 @48939 has 10 MA's),

Gene: BEEST\_63 Start: 42792, Stop: 43007, Start Num: 90

Candidate Starts for BEEST\_63:

(Start: 90 @42792 has 82 MA's), (120, 42879), (123, 42888),

Gene: BGlluviae\_63 Start: 42595, Stop: 42810, Start Num: 90

Candidate Starts for BGlluviae\_63:

(Start: 90 @42595 has 82 MA's), (120, 42682), (123, 42691),



Gene: BaghaKamala\_63 Start: 42253, Stop: 42471, Start Num: 90  
Candidate Starts for BaghaKamala\_63:  
(60, 42175), (Start: 90 @42253 has 82 MA's), (120, 42340), (123, 42349),

Gene: BarrelRoll\_64 Start: 42877, Stop: 43092, Start Num: 90  
Candidate Starts for BarrelRoll\_64:  
(60, 42799), (Start: 90 @42877 has 82 MA's), (120, 42964), (123, 42973),

Gene: BatStarr\_56 Start: 40720, Stop: 40962, Start Num: 84  
Candidate Starts for BatStarr\_56:  
(Start: 84 @40720 has 71 MA's), (128, 40846),

Gene: BaxterFox\_57 Start: 40474, Stop: 40716, Start Num: 84  
Candidate Starts for BaxterFox\_57:  
(Start: 84 @40474 has 71 MA's), (128, 40600),

Gene: Beezoo\_65 Start: 43389, Stop: 43604, Start Num: 90  
Candidate Starts for Beezoo\_65:  
(Start: 90 @43389 has 82 MA's), (120, 43476), (123, 43485),

Gene: Bella96\_64 Start: 43173, Stop: 43388, Start Num: 90  
Candidate Starts for Bella96\_64:  
(Start: 90 @43173 has 82 MA's), (120, 43260), (123, 43269),

Gene: Belladonna\_63 Start: 42595, Stop: 42810, Start Num: 90  
Candidate Starts for Belladonna\_63:  
(Start: 90 @42595 has 82 MA's), (120, 42682), (123, 42691),

Gene: Bern\_65 Start: 41846, Stop: 42064, Start Num: 90  
Candidate Starts for Bern\_65:  
(Start: 90 @41846 has 82 MA's), (120, 41933), (123, 41942),

Gene: BigMama\_78 Start: 58605, Stop: 58919, Start Num: 50  
Candidate Starts for BigMama\_78:  
(27, 58488), (36, 58551), (Start: 50 @58605 has 21 MA's), (Start: 52 @58614 has 1 MA's), (69, 58659),  
(72, 58668),

Gene: BillDoor\_49 Start: 35229, Stop: 34978, Start Num: 84  
Candidate Starts for BillDoor\_49:  
(46, 35346), (Start: 84 @35229 has 71 MA's), (87, 35223), (105, 35187), (128, 35100), (139, 35055),

Gene: Bipper\_99 Start: 62157, Stop: 62378, Start Num: 97  
Candidate Starts for Bipper\_99:  
(36, 61980), (47, 62025), (48, 62028), (61, 62067), (80, 62115), (Start: 97 @62157 has 6 MA's), (109, 62193),

Gene: Biskit\_52 Start: 36207, Stop: 35971, Start Num: 84  
Candidate Starts for Biskit\_52:  
(79, 36225), (Start: 84 @36207 has 71 MA's), (135, 36060), (139, 36048), (141, 36045),

Gene: Blizzard\_63 Start: 42792, Stop: 43007, Start Num: 90  
Candidate Starts for Blizzard\_63:

(Start: 90 @42792 has 82 MA's), (120, 42879), (123, 42888),

Gene: Blondies\_52 Start: 36524, Stop: 36288, Start Num: 84

Candidate Starts for Blondies\_52:

(79, 36542), (Start: 84 @36524 has 71 MA's), (135, 36377), (139, 36365), (141, 36362),

Gene: BlueShadow\_49 Start: 30488, Stop: 30679, Start Num: 101

Candidate Starts for BlueShadow\_49:

(25, 30227), (59, 30389), (Start: 101 @30488 has 13 MA's),

Gene: Bobquesha\_67 Start: 40811, Stop: 41029, Start Num: 95

Candidate Starts for Bobquesha\_67:

(39, 40652), (42, 40661), (Start: 95 @40811 has 19 MA's), (130, 40928), (145, 40964), (150, 40979), (152, 40985),

Gene: Boiiii\_63 Start: 42794, Stop: 43009, Start Num: 90

Candidate Starts for Boiiii\_63:

(Start: 90 @42794 has 82 MA's), (120, 42881), (123, 42890),

Gene: BoyNamedSue\_55 Start: 39196, Stop: 39438, Start Num: 84

Candidate Starts for BoyNamedSue\_55:

(Start: 84 @39196 has 71 MA's), (118, 39292), (128, 39322),

Gene: Bryler\_67 Start: 42423, Stop: 42635, Start Num: 94

Candidate Starts for Bryler\_67:

(3, 41757), (4, 41781), (7, 41856), (15, 42009), (32, 42240), (Start: 94 @42423 has 40 MA's), (120, 42504), (123, 42513),

Gene: Brylie\_71 Start: 47955, Stop: 48155, Start Num: 99

Candidate Starts for Brylie\_71:

(66, 47871), (67, 47877), (85, 47931), (91, 47943), (Start: 99 @47955 has 10 MA's),

Gene: Bunnybear\_49 Start: 37204, Stop: 37446, Start Num: 84

Candidate Starts for Bunnybear\_49:

(Start: 84 @37204 has 71 MA's), (128, 37330),

Gene: Burnsey\_49 Start: 36021, Stop: 35788, Start Num: 84

Candidate Starts for Burnsey\_49:

(Start: 84 @36021 has 71 MA's), (117, 35937), (135, 35877),

Gene: Butterscotch\_78 Start: 58571, Stop: 58885, Start Num: 50

Candidate Starts for Butterscotch\_78:

(27, 58454), (36, 58517), (Start: 50 @58571 has 21 MA's), (Start: 52 @58580 has 1 MA's), (69, 58625), (72, 58634),

Gene: Button\_51 Start: 36058, Stop: 35855, Start Num: 103

Candidate Starts for Button\_51:

(Start: 103 @36058 has 8 MA's), (106, 36046), (Start: 108 @36037 has 1 MA's), (111, 36031), (125, 35980), (132, 35956),

Gene: Buttrmlkdreams\_52 Start: 36654, Stop: 36418, Start Num: 84

Candidate Starts for Buttrmlkdreams\_52:

(79, 36672), (Start: 84 @36654 has 71 MA's), (135, 36507), (139, 36495), (141, 36492),

Gene: CREW\_63 Start: 42595, Stop: 42810, Start Num: 90  
Candidate Starts for CREW\_63:  
(Start: 90 @42595 has 82 MA's), (120, 42682), (123, 42691),

Gene: Cafasso\_117 Start: 64785, Stop: 64579, Start Num: 101  
Candidate Starts for Cafasso\_117:  
(Start: 101 @64785 has 13 MA's), (121, 64713), (127, 64698), (131, 64683),

Gene: Cain\_67 Start: 42411, Stop: 42623, Start Num: 94  
Candidate Starts for Cain\_67:  
(3, 41745), (4, 41769), (7, 41844), (15, 41997), (32, 42228), (Start: 94 @42411 has 40 MA's), (120, 42492), (123, 42501),

Gene: CallaLilly\_65 Start: 42518, Stop: 42733, Start Num: 90  
Candidate Starts for CallaLilly\_65:  
(Start: 90 @42518 has 82 MA's), (120, 42605), (123, 42614),

Gene: CanesSauce\_48 Start: 35730, Stop: 35479, Start Num: 84  
Candidate Starts for CanesSauce\_48:  
(Start: 84 @35730 has 71 MA's), (87, 35724), (128, 35601), (139, 35556),

Gene: Capricorn\_63 Start: 42595, Stop: 42810, Start Num: 90  
Candidate Starts for Capricorn\_63:  
(Start: 90 @42595 has 82 MA's), (120, 42682), (123, 42691),

Gene: CaseJules\_65 Start: 42792, Stop: 43007, Start Num: 90  
Candidate Starts for CaseJules\_65:  
(Start: 90 @42792 has 82 MA's), (120, 42879), (123, 42888),

Gene: Cashline\_53 Start: 39714, Stop: 39956, Start Num: 84  
Candidate Starts for Cashline\_53:  
(Start: 84 @39714 has 71 MA's), (128, 39840),

Gene: Chancellor\_66 Start: 41921, Stop: 42139, Start Num: 95  
Candidate Starts for Chancellor\_66:  
(39, 41762), (42, 41771), (Start: 95 @41921 has 19 MA's), (130, 42038), (145, 42074), (150, 42089),

Gene: Chavito\_66 Start: 43632, Stop: 43841, Start Num: 94  
Candidate Starts for Chavito\_66:  
(Start: 94 @43632 has 40 MA's), (120, 43713), (123, 43722), (152, 43797),

Gene: CheetoDust\_63 Start: 42300, Stop: 42518, Start Num: 90  
Candidate Starts for CheetoDust\_63:  
(Start: 90 @42300 has 82 MA's), (120, 42387), (123, 42396),

Gene: Cheetobro\_66 Start: 41918, Stop: 42136, Start Num: 95  
Candidate Starts for Cheetobro\_66:  
(39, 41759), (42, 41768), (Start: 95 @41918 has 19 MA's), (130, 42035), (145, 42071), (150, 42086),

Gene: CherryTomatoes\_158 Start: 111644, Stop: 111907, Start Num: 74  
Candidate Starts for CherryTomatoes\_158:

(55, 111599), (72, 111641), (Start: 74 @111644 has 3 MA's), (128, 111794), (137, 111830), (144, 111842),

Gene: ChickenTender\_51 Start: 35574, Stop: 35341, Start Num: 84

Candidate Starts for ChickenTender\_51:

(23, 35829), (41, 35706), (58, 35649), (Start: 84 @35574 has 71 MA's), (110, 35514), (117, 35490), (139, 35418),

Gene: Chill\_82 Start: 58548, Stop: 58862, Start Num: 50

Candidate Starts for Chill\_82:

(27, 58431), (36, 58494), (Start: 50 @58548 has 21 MA's), (Start: 52 @58557 has 1 MA's), (69, 58602), (72, 58611),

Gene: ChocoMunchkin\_48 Start: 35730, Stop: 35479, Start Num: 84

Candidate Starts for ChocoMunchkin\_48:

(Start: 84 @35730 has 71 MA's), (87, 35724), (128, 35601), (139, 35556),

Gene: Chop\_73 Start: 49004, Stop: 49204, Start Num: 99

Candidate Starts for Chop\_73:

(66, 48920), (67, 48926), (91, 48992), (Start: 99 @49004 has 10 MA's),

Gene: Chris\_66 Start: 43655, Stop: 43864, Start Num: 94

Candidate Starts for Chris\_66:

(12, 43181), (Start: 94 @43655 has 40 MA's), (115, 43718), (120, 43736), (123, 43745), (129, 43769),

Gene: Clipper\_68 Start: 43491, Stop: 43709, Start Num: 90

Candidate Starts for Clipper\_68:

(Start: 90 @43491 has 82 MA's), (120, 43578), (123, 43587),

Gene: Collard\_55 Start: 39573, Stop: 39785, Start Num: 96

Candidate Starts for Collard\_55:

(66, 39498), (68, 39507), (Start: 73 @39519 has 1 MA's), (Start: 96 @39573 has 22 MA's), (104, 39591), (120, 39651), (127, 39675), (128, 39678), (136, 39705), (149, 39732), (156, 39780),

Gene: Cozz\_47 Start: 35618, Stop: 35385, Start Num: 84

Candidate Starts for Cozz\_47:

(Start: 84 @35618 has 71 MA's), (117, 35534), (135, 35474),

Gene: Cracklewink\_99 Start: 61392, Stop: 61613, Start Num: 97

Candidate Starts for Cracklewink\_99:

(36, 61215), (47, 61260), (48, 61263), (61, 61302), (80, 61350), (Start: 97 @61392 has 6 MA's), (102, 61404), (109, 61428),

Gene: CrimD\_65 Start: 43416, Stop: 43631, Start Num: 90

Candidate Starts for CrimD\_65:

(60, 43338), (Start: 90 @43416 has 82 MA's), (120, 43503), (123, 43512),

Gene: Cuke\_99 Start: 56679, Stop: 56984, Start Num: 53

Candidate Starts for Cuke\_99:

(33, 56601), (36, 56613), (Start: 52 @56676 has 1 MA's), (Start: 53 @56679 has 3 MA's), (83, 56766), (107, 56823), (141, 56910), (154, 56958),

Gene: Curiosium\_67 Start: 42105, Stop: 42323, Start Num: 90

Candidate Starts for Curiosium\_67:

(Start: 90 @42105 has 82 MA's), (98, 42117), (120, 42192), (123, 42201),

Gene: DS6A\_87 Start: 56210, Stop: 56485, Start Num: 73

Candidate Starts for DS6A\_87:

(Start: 73 @56210 has 1 MA's), (140, 56414),

Gene: Dadosky\_59 Start: 39912, Stop: 40124, Start Num: 96

Candidate Starts for Dadosky\_59:

(Start: 96 @39912 has 22 MA's), (120, 39990), (127, 40014), (128, 40017), (136, 40044), (149, 40071),

Gene: Dalmuri\_63 Start: 42595, Stop: 42810, Start Num: 90

Candidate Starts for Dalmuri\_63:

(Start: 90 @42595 has 82 MA's), (120, 42682), (123, 42691),

Gene: DarthP\_63 Start: 42936, Stop: 43148, Start Num: 94

Candidate Starts for DarthP\_63:

(2, 42249), (6, 42336), (8, 42384), (9, 42411), (10, 42435), (13, 42477), (34, 42759), (Start: 94 @42936 has 40 MA's), (120, 43017), (123, 43026), (152, 43101),

Gene: Dartin\_66 Start: 43084, Stop: 43293, Start Num: 94

Candidate Starts for Dartin\_66:

(30, 42904), (Start: 94 @43084 has 40 MA's), (120, 43165), (123, 43174),

Gene: Deby\_64 Start: 43078, Stop: 43293, Start Num: 90

Candidate Starts for Deby\_64:

(Start: 90 @43078 has 82 MA's), (120, 43165), (123, 43174),

Gene: DelRio\_72 Start: 49046, Stop: 49246, Start Num: 99

Candidate Starts for DelRio\_72:

(66, 48962), (67, 48968), (91, 49034), (Start: 99 @49046 has 10 MA's),

Gene: Delton\_80 Start: 58981, Stop: 59295, Start Num: 50

Candidate Starts for Delton\_80:

(27, 58864), (36, 58927), (Start: 50 @58981 has 21 MA's), (Start: 52 @58990 has 1 MA's), (69, 59035), (72, 59044),

Gene: Denise\_48 Start: 33091, Stop: 33306, Start Num: 84

Candidate Starts for Denise\_48:

(Start: 84 @33091 has 71 MA's), (128, 33190), (136, 33223),

Gene: Devera\_71 Start: 44431, Stop: 44646, Start Num: 90

Candidate Starts for Devera\_71:

(60, 44353), (Start: 90 @44431 has 82 MA's), (120, 44518), (123, 44527),

Gene: Dole\_69 Start: 44434, Stop: 44649, Start Num: 90

Candidate Starts for Dole\_69:

(60, 44356), (Start: 90 @44434 has 82 MA's), (120, 44521), (123, 44530),

Gene: DrHayes\_64 Start: 43328, Stop: 43543, Start Num: 90

Candidate Starts for DrHayes\_64:

(Start: 90 @43328 has 82 MA's), (120, 43415), (123, 43424),

Gene: DumpsterDude\_53 Start: 41558, Stop: 41800, Start Num: 84  
Candidate Starts for DumpsterDude\_53:  
(Start: 84 @41558 has 71 MA's), (89, 41567), (128, 41684),

Gene: Durfee\_63 Start: 42792, Stop: 43007, Start Num: 90  
Candidate Starts for Durfee\_63:  
(Start: 90 @42792 has 82 MA's), (120, 42879), (123, 42888),

Gene: EMSquaredA\_53 Start: 38371, Stop: 38613, Start Num: 84  
Candidate Starts for EMSquaredA\_53:  
(Start: 84 @38371 has 71 MA's), (118, 38467), (128, 38497),

Gene: Easley\_49 Start: 35528, Stop: 35743, Start Num: 84  
Candidate Starts for Easley\_49:  
(Start: 84 @35528 has 71 MA's), (128, 35627),

Gene: Ebert\_54 Start: 34571, Stop: 34813, Start Num: 84  
Candidate Starts for Ebert\_54:  
(Start: 84 @34571 has 71 MA's), (128, 34697),

Gene: Edugator\_56 Start: 41333, Stop: 41545, Start Num: 96  
Candidate Starts for Edugator\_56:  
(Start: 96 @41333 has 22 MA's), (104, 41351), (120, 41411), (127, 41435), (128, 41438), (136, 41465),  
(149, 41492), (156, 41540),

Gene: Efra2\_69 Start: 43158, Stop: 43376, Start Num: 90  
Candidate Starts for Efra2\_69:  
(60, 43080), (Start: 90 @43158 has 82 MA's), (120, 43245), (123, 43254),

Gene: Ellie\_59 Start: 42407, Stop: 42619, Start Num: 94  
Candidate Starts for Ellie\_59:  
(Start: 94 @42407 has 40 MA's), (120, 42488), (123, 42497),

Gene: Emalyn\_48 Start: 35066, Stop: 34815, Start Num: 84  
Candidate Starts for Emalyn\_48:  
(Start: 84 @35066 has 71 MA's), (87, 35060), (128, 34937), (139, 34892),

Gene: Emerson\_65 Start: 42909, Stop: 43127, Start Num: 90  
Candidate Starts for Emerson\_65:  
(Start: 90 @42909 has 82 MA's), (120, 42996), (123, 43005),

Gene: Eponine\_68 Start: 42764, Stop: 42982, Start Num: 95  
Candidate Starts for Eponine\_68:  
(39, 42605), (42, 42614), (Start: 95 @42764 has 19 MA's), (130, 42881), (145, 42917), (150, 42932),

Gene: Erk16\_80 Start: 58641, Stop: 58955, Start Num: 50  
Candidate Starts for Erk16\_80:  
(27, 58524), (36, 58587), (Start: 50 @58641 has 21 MA's), (Start: 52 @58650 has 1 MA's), (69, 58695),  
(72, 58704),

Gene: Eviarto\_57 Start: 40695, Stop: 40937, Start Num: 84  
Candidate Starts for Eviarto\_57:  
(Start: 84 @40695 has 71 MA's), (128, 40821),

Gene: Faith5x5\_42 Start: 30278, Stop: 30463, Start Num: 84  
Candidate Starts for Faith5x5\_42:  
(Start: 84 @30278 has 71 MA's), (128, 30377), (136, 30410),

Gene: Faiyaz\_89 Start: 58877, Stop: 59098, Start Num: 97  
Candidate Starts for Faiyaz\_89:  
(Start: 97 @58877 has 6 MA's), (109, 58913), (116, 58943),

Gene: Fefferhead\_61 Start: 42316, Stop: 42528, Start Num: 94  
Candidate Starts for Fefferhead\_61:  
(Start: 94 @42316 has 40 MA's), (120, 42397), (123, 42406),

Gene: Feyre\_60 Start: 43292, Stop: 43504, Start Num: 96  
Candidate Starts for Feyre\_60:  
(Start: 96 @43292 has 22 MA's), (120, 43370), (127, 43394), (128, 43397), (139, 43430), (149, 43451),  
(154, 43478),

Gene: Fionnbharth\_66 Start: 42162, Stop: 42380, Start Num: 95  
Candidate Starts for Fionnbharth\_66:  
(39, 42003), (42, 42012), (Start: 95 @42162 has 19 MA's), (130, 42279), (145, 42315), (150, 42330),

Gene: Floral\_54 Start: 40277, Stop: 40519, Start Num: 84  
Candidate Starts for Floral\_54:  
(Start: 84 @40277 has 71 MA's), (128, 40403),

Gene: Fowlmouth\_95 Start: 57786, Stop: 58094, Start Num: 53  
Candidate Starts for Fowlmouth\_95:  
(Start: 53 @57786 has 3 MA's), (72, 57837), (83, 57873), (88, 57885), (107, 57930), (143, 58020),

Gene: GTE2\_40 Start: 35662, Stop: 35417, Start Num: 87  
Candidate Starts for GTE2\_40:  
(46, 35785), (Start: 84 @35668 has 71 MA's), (87, 35662), (105, 35626), (117, 35575), (128, 35539),  
(139, 35494), (152, 35461),

Gene: Ganymede\_64 Start: 42817, Stop: 43032, Start Num: 90  
Candidate Starts for Ganymede\_64:  
(Start: 90 @42817 has 82 MA's), (120, 42904), (123, 42913),

Gene: Gengar\_57 Start: 41311, Stop: 41523, Start Num: 96  
Candidate Starts for Gengar\_57:  
(Start: 96 @41311 has 22 MA's), (120, 41389), (127, 41413), (128, 41416), (136, 41443), (149, 41470),  
(154, 41497),

Gene: Geraldini\_66 Start: 43474, Stop: 43689, Start Num: 90  
Candidate Starts for Geraldini\_66:  
(Start: 90 @43474 has 82 MA's), (120, 43561), (123, 43570),

Gene: GiKK\_53 Start: 36382, Stop: 36179, Start Num: 103  
Candidate Starts for GiKK\_53:  
(Start: 103 @36382 has 8 MA's), (106, 36370), (Start: 108 @36361 has 1 MA's), (111, 36355), (125,  
36304), (132, 36280),

Gene: Giuseppe\_81 Start: 58355, Stop: 58669, Start Num: 50  
Candidate Starts for Giuseppe\_81:  
(24, 58211), (38, 58310), (41, 58328), (Start: 50 @58355 has 21 MA's), (Start: 52 @58364 has 1 MA's),  
(69, 58409), (72, 58418), (88, 58460),

Gene: Gorpy\_49 Start: 31480, Stop: 31674, Start Num: 101  
Candidate Starts for Gorpy\_49:  
(Start: 101 @31480 has 13 MA's), (120, 31549), (151, 31627),

Gene: GrandSlam\_73 Start: 49004, Stop: 49204, Start Num: 99  
Candidate Starts for GrandSlam\_73:  
(66, 48920), (67, 48926), (91, 48992), (Start: 99 @49004 has 10 MA's),

Gene: Guanica15\_68 Start: 42899, Stop: 43117, Start Num: 90  
Candidate Starts for Guanica15\_68:  
(60, 42821), (Start: 90 @42899 has 82 MA's), (120, 42986), (123, 42995),

Gene: Guillsminger\_58 Start: 41282, Stop: 41494, Start Num: 96  
Candidate Starts for Guillsminger\_58:  
(Start: 96 @41282 has 22 MA's), (120, 41360), (127, 41384), (128, 41387), (139, 41420), (149, 41441),  
(154, 41468),

Gene: Gumball\_80 Start: 58986, Stop: 59300, Start Num: 50  
Candidate Starts for Gumball\_80:  
(36, 58932), (Start: 50 @58986 has 21 MA's), (Start: 52 @58995 has 1 MA's), (69, 59040), (72, 59049),  
(88, 59091),

Gene: Hammy\_63 Start: 42924, Stop: 43136, Start Num: 94  
Candidate Starts for Hammy\_63:  
(34, 42747), (Start: 94 @42924 has 40 MA's), (120, 43005), (123, 43014), (152, 43089),

Gene: Hamood\_73 Start: 49004, Stop: 49204, Start Num: 99  
Candidate Starts for Hamood\_73:  
(66, 48920), (67, 48926), (91, 48992), (Start: 99 @49004 has 10 MA's),

Gene: Hawkeye\_92 Start: 60485, Stop: 60838, Start Num: 49  
Candidate Starts for Hawkeye\_92:  
(Start: 49 @60485 has 1 MA's), (Start: 52 @60497 has 1 MA's), (118, 60683), (154, 60809),

Gene: HedwigODU\_63 Start: 42440, Stop: 42655, Start Num: 90  
Candidate Starts for HedwigODU\_63:  
(Start: 90 @42440 has 82 MA's), (120, 42527), (123, 42536),

Gene: Heftyboy\_58 Start: 41654, Stop: 41866, Start Num: 96  
Candidate Starts for Heftyboy\_58:  
(Start: 96 @41654 has 22 MA's), (120, 41732), (127, 41756), (128, 41759), (139, 41792), (149, 41813),  
(154, 41840),

Gene: Helpful\_82 Start: 58743, Stop: 59057, Start Num: 50  
Candidate Starts for Helpful\_82:  
(24, 58599), (38, 58698), (41, 58716), (Start: 50 @58743 has 21 MA's), (Start: 52 @58752 has 1 MA's),  
(69, 58797), (72, 58806), (88, 58848),



Gene: Herod\_55 Start: 40739, Stop: 40981, Start Num: 84

Candidate Starts for Herod\_55:

(Start: 84 @40739 has 71 MA's), (128, 40865),

Gene: Hexbug\_56 Start: 38441, Stop: 38238, Start Num: 103

Candidate Starts for Hexbug\_56:

(Start: 103 @38441 has 8 MA's), (Start: 108 @38420 has 1 MA's), (132, 38339), (137, 38318), (142, 38309), (152, 38282),

Gene: Hilltopfarm\_91 Start: 59257, Stop: 59478, Start Num: 97

Candidate Starts for Hilltopfarm\_91:

(Start: 97 @59257 has 6 MA's), (109, 59293), (116, 59323),

Gene: Homura\_63 Start: 42595, Stop: 42810, Start Num: 90

Candidate Starts for Homura\_63:

(Start: 90 @42595 has 82 MA's), (120, 42682), (123, 42691),

Gene: Horseradish\_52 Start: 36140, Stop: 35904, Start Num: 84

Candidate Starts for Horseradish\_52:

(79, 36158), (Start: 84 @36140 has 71 MA's), (135, 35993), (139, 35981), (141, 35978),

Gene: Hortense\_55 Start: 40090, Stop: 40332, Start Num: 84

Candidate Starts for Hortense\_55:

(Start: 84 @40090 has 71 MA's), (128, 40216),

Gene: Howe\_55 Start: 40090, Stop: 40332, Start Num: 84

Candidate Starts for Howe\_55:

(Start: 84 @40090 has 71 MA's), (128, 40216),

Gene: Hugley\_53 Start: 40719, Stop: 40961, Start Num: 84

Candidate Starts for Hugley\_53:

(Start: 84 @40719 has 71 MA's), (128, 40845),

Gene: Hurricane\_64 Start: 42910, Stop: 43122, Start Num: 94

Candidate Starts for Hurricane\_64:

(Start: 94 @42910 has 40 MA's), (123, 43000), (152, 43075),

Gene: Hyperbowlee\_63 Start: 42792, Stop: 43007, Start Num: 90

Candidate Starts for Hyperbowlee\_63:

(Start: 90 @42792 has 82 MA's), (120, 42879), (123, 42888),

Gene: Hyzer\_62 Start: 42111, Stop: 42353, Start Num: 84

Candidate Starts for Hyzer\_62:

(Start: 84 @42111 has 71 MA's), (128, 42237),

Gene: Illumine\_69 Start: 44433, Stop: 44648, Start Num: 90

Candidate Starts for Illumine\_69:

(60, 44355), (Start: 90 @44433 has 82 MA's), (120, 44520), (123, 44529),

Gene: Indlulamithi\_87 Start: 59764, Stop: 60048, Start Num: 52

Candidate Starts for Indlulamithi\_87:

(Start: 52 @59764 has 1 MA's), (54, 59773), (69, 59809), (88, 59860), (Start: 95 @59872 has 19 MA's), (133, 59956),

Gene: Inky\_63 Start: 42595, Stop: 42810, Start Num: 90  
Candidate Starts for Inky\_63:  
(Start: 90 @42595 has 82 MA's), (120, 42682), (123, 42691),

Gene: InvictusManeo\_55 Start: 39616, Stop: 39828, Start Num: 96  
Candidate Starts for InvictusManeo\_55:  
(66, 39541), (68, 39550), (Start: 73 @39562 has 1 MA's), (Start: 96 @39616 has 22 MA's), (104, 39634), (120, 39694), (127, 39718), (128, 39721), (136, 39748), (149, 39775), (156, 39823),

Gene: Isolde\_49 Start: 30525, Stop: 30716, Start Num: 101  
Candidate Starts for Isolde\_49:  
(Start: 101 @30525 has 13 MA's),

Gene: JAWS\_64 Start: 42868, Stop: 43086, Start Num: 90  
Candidate Starts for JAWS\_64:  
(60, 42790), (Start: 90 @42868 has 82 MA's), (120, 42955), (123, 42964),

Gene: JF1\_66 Start: 42079, Stop: 42297, Start Num: 95  
Candidate Starts for JF1\_66:  
(39, 41920), (42, 41929), (Start: 95 @42079 has 19 MA's), (130, 42196), (145, 42232), (150, 42247),

Gene: Jablanski\_57 Start: 41777, Stop: 42019, Start Num: 84  
Candidate Starts for Jablanski\_57:  
(16, 41396), (Start: 84 @41777 has 71 MA's), (128, 41903),

Gene: Jamzy\_53 Start: 36362, Stop: 36159, Start Num: 103  
Candidate Starts for Jamzy\_53:  
(Start: 103 @36362 has 8 MA's), (106, 36350), (Start: 108 @36341 has 1 MA's), (111, 36335), (125, 36284), (132, 36260),

Gene: Jarvi\_63 Start: 42595, Stop: 42810, Start Num: 90  
Candidate Starts for Jarvi\_63:  
(Start: 90 @42595 has 82 MA's), (120, 42682), (123, 42691),

Gene: Jayhawk\_65 Start: 42937, Stop: 43152, Start Num: 90  
Candidate Starts for Jayhawk\_65:  
(Start: 90 @42937 has 82 MA's), (120, 43024), (123, 43033),

Gene: Jeckyll\_63 Start: 42595, Stop: 42810, Start Num: 90  
Candidate Starts for Jeckyll\_63:  
(Start: 90 @42595 has 82 MA's), (120, 42682), (123, 42691),

Gene: Joy99\_63 Start: 42524, Stop: 42739, Start Num: 90  
Candidate Starts for Joy99\_63:  
(Start: 90 @42524 has 82 MA's), (120, 42611), (123, 42620),

Gene: Juliette\_68 Start: 42226, Stop: 42444, Start Num: 95  
Candidate Starts for Juliette\_68:  
(39, 42067), (42, 42076), (Start: 95 @42226 has 19 MA's), (130, 42343), (145, 42379), (150, 42394),

Gene: KandZ\_77 Start: 58571, Stop: 58885, Start Num: 50  
Candidate Starts for KandZ\_77:

(24, 58427), (38, 58526), (41, 58544), (Start: 50 @58571 has 21 MA's), (Start: 52 @58580 has 1 MA's), (69, 58625), (72, 58634), (88, 58676),

Gene: Keshu\_66 Start: 43008, Stop: 43220, Start Num: 94  
Candidate Starts for Keshu\_66:  
(32, 42825), (Start: 94 @43008 has 40 MA's), (123, 43098), (152, 43173),

Gene: Kevin1\_59 Start: 36836, Stop: 37027, Start Num: 93  
Candidate Starts for Kevin1\_59:  
(Start: 93 @36836 has 1 MA's), (144, 36968),

Gene: KiSi\_68 Start: 43636, Stop: 43845, Start Num: 94  
Candidate Starts for KiSi\_68:  
(Start: 94 @43636 has 40 MA's), (104, 43657), (115, 43699), (120, 43717), (123, 43726), (129, 43750),

Gene: Kratio\_55 Start: 39352, Stop: 39564, Start Num: 96  
Candidate Starts for Kratio\_55:  
(11, 38872), (18, 38959), (20, 39010), (28, 39118), (29, 39124), (66, 39277), (68, 39286), (Start: 73 @39298 has 1 MA's), (Start: 96 @39352 has 22 MA's), (104, 39370), (127, 39454), (128, 39457), (136, 39484), (149, 39511), (156, 39559),

Gene: Kraw\_67 Start: 41914, Stop: 42132, Start Num: 95  
Candidate Starts for Kraw\_67:  
(39, 41755), (42, 41764), (Start: 95 @41914 has 19 MA's), (130, 42031), (145, 42067), (150, 42082),

Gene: Krueger\_68 Start: 42699, Stop: 42911, Start Num: 94  
Candidate Starts for Krueger\_68:  
(32, 42516), (Start: 94 @42699 has 40 MA's), (120, 42780), (123, 42789), (153, 42873),

Gene: Larva\_58 Start: 40784, Stop: 40996, Start Num: 96  
Candidate Starts for Larva\_58:  
(Start: 96 @40784 has 22 MA's), (120, 40862), (127, 40886), (128, 40889), (136, 40916), (149, 40943),

Gene: LastHope\_68 Start: 42025, Stop: 42237, Start Num: 94  
Candidate Starts for LastHope\_68:  
(Start: 94 @42025 has 40 MA's), (120, 42106), (123, 42115),

Gene: LaterM\_64 Start: 43287, Stop: 43502, Start Num: 90  
Candidate Starts for LaterM\_64:  
(Start: 90 @43287 has 82 MA's), (120, 43374), (123, 43383),

Gene: LeMond\_67 Start: 43270, Stop: 43479, Start Num: 94  
Candidate Starts for LeMond\_67:  
(Start: 94 @43270 has 40 MA's), (104, 43291), (115, 43333), (120, 43351), (123, 43360), (129, 43384),

Gene: Lea83\_65 Start: 42945, Stop: 43157, Start Num: 94  
Candidate Starts for Lea83\_65:  
(Start: 94 @42945 has 40 MA's), (123, 43035), (152, 43110),

Gene: Lebo14\_67 Start: 42247, Stop: 42465, Start Num: 95  
Candidate Starts for Lebo14\_67:  
(39, 42088), (42, 42097), (Start: 95 @42247 has 19 MA's), (130, 42364), (145, 42400), (150, 42415),

Gene: Leston\_57 Start: 41411, Stop: 41623, Start Num: 96  
Candidate Starts for Leston\_57:  
(Start: 96 @41411 has 22 MA's), (120, 41489), (127, 41513), (128, 41516), (139, 41549), (149, 41570),  
(154, 41597),

Gene: LilPharaoh\_52 Start: 39482, Stop: 39691, Start Num: 94  
Candidate Starts for LilPharaoh\_52:  
(Start: 94 @39482 has 40 MA's), (120, 39563), (123, 39572),

Gene: LindNT\_63 Start: 43082, Stop: 43297, Start Num: 90  
Candidate Starts for LindNT\_63:  
(60, 43004), (Start: 90 @43082 has 82 MA's), (120, 43169), (123, 43178),

Gene: Llorens\_63 Start: 42595, Stop: 42810, Start Num: 90  
Candidate Starts for Llorens\_63:  
(Start: 90 @42595 has 82 MA's), (120, 42682), (123, 42691),

Gene: Lton\_46 Start: 30324, Stop: 30512, Start Num: 84  
Candidate Starts for Lton\_46:  
(64, 30261), (76, 30294), (Start: 84 @30324 has 71 MA's), (113, 30396), (128, 30423), (136, 30456),

Gene: Lucky10\_47 Start: 33042, Stop: 33230, Start Num: 84  
Candidate Starts for Lucky10\_47:  
(Start: 84 @33042 has 71 MA's), (128, 33141), (136, 33174),

Gene: Lunahalos\_63 Start: 42595, Stop: 42810, Start Num: 90  
Candidate Starts for Lunahalos\_63:  
(Start: 90 @42595 has 82 MA's), (120, 42682), (123, 42691),

Gene: MScarn\_54 Start: 36322, Stop: 36086, Start Num: 84  
Candidate Starts for MScarn\_54:  
(79, 36340), (Start: 84 @36322 has 71 MA's), (135, 36175), (139, 36163), (141, 36160),

Gene: MacKat\_59 Start: 38375, Stop: 38593, Start Num: 90  
Candidate Starts for MacKat\_59:  
(Start: 90 @38375 has 82 MA's), (120, 38462), (123, 38471),

Gene: MacnCheese\_66 Start: 43527, Stop: 43739, Start Num: 94  
Candidate Starts for MacnCheese\_66:  
(Start: 90 @43521 has 82 MA's), (Start: 94 @43527 has 40 MA's), (123, 43617), (146, 43677), (152,  
43692),

Gene: Madeline\_54 Start: 39604, Stop: 39846, Start Num: 84  
Candidate Starts for Madeline\_54:  
(Start: 84 @39604 has 71 MA's), (128, 39730),

Gene: Malisha\_67 Start: 41399, Stop: 41608, Start Num: 84  
Candidate Starts for Malisha\_67:  
(Start: 84 @41399 has 71 MA's), (128, 41525), (129, 41531),

Gene: Malthus\_67 Start: 41914, Stop: 42132, Start Num: 95  
Candidate Starts for Malthus\_67:  
(39, 41755), (42, 41764), (Start: 95 @41914 has 19 MA's), (130, 42031), (145, 42067), (150, 42082),

Gene: Margaret\_54 Start: 37114, Stop: 36911, Start Num: 103

Candidate Starts for Margaret\_54:

(Start: 103 @37114 has 8 MA's), (106, 37102), (Start: 108 @37093 has 1 MA's), (111, 37087), (125, 37036), (132, 37012),

Gene: Maridalia\_57 Start: 38950, Stop: 39192, Start Num: 84

Candidate Starts for Maridalia\_57:

(Start: 84 @38950 has 71 MA's), (128, 39076),

Gene: MarkPhew\_66 Start: 42770, Stop: 42982, Start Num: 94

Candidate Starts for MarkPhew\_66:

(Start: 94 @42770 has 40 MA's), (115, 42833), (120, 42851), (123, 42860), (129, 42884),

Gene: Marshawn\_63 Start: 43120, Stop: 43332, Start Num: 94

Candidate Starts for Marshawn\_63:

(Start: 94 @43120 has 40 MA's), (120, 43201),

Gene: Marteena\_52 Start: 38371, Stop: 38613, Start Num: 84

Candidate Starts for Marteena\_52:

(Start: 84 @38371 has 71 MA's), (118, 38467), (128, 38497),

Gene: McMater\_66 Start: 43084, Stop: 43293, Start Num: 94

Candidate Starts for McMater\_66:

(30, 42904), (Start: 94 @43084 has 40 MA's), (120, 43165), (123, 43174),

Gene: Mcklovin\_51 Start: 41557, Stop: 41799, Start Num: 84

Candidate Starts for Mcklovin\_51:

(Start: 84 @41557 has 71 MA's), (128, 41683),

Gene: MeaningOfLife\_64 Start: 43347, Stop: 43562, Start Num: 90

Candidate Starts for MeaningOfLife\_64:

(Start: 90 @43347 has 82 MA's), (120, 43434), (123, 43443),

Gene: Megsy\_66 Start: 43003, Stop: 43218, Start Num: 90

Candidate Starts for Megsy\_66:

(Start: 90 @43003 has 82 MA's), (120, 43090), (123, 43099),

Gene: MidnightRain\_51 Start: 31618, Stop: 31809, Start Num: 101

Candidate Starts for MidnightRain\_51:

(75, 31558), (Start: 101 @31618 has 13 MA's), (148, 31756),

Gene: Miryou\_61 Start: 44008, Stop: 44220, Start Num: 96

Candidate Starts for Miryou\_61:

(Start: 96 @44008 has 22 MA's), (120, 44086), (127, 44110), (128, 44113), (136, 44140), (149, 44167), (154, 44194),

Gene: MissDaisy\_63 Start: 40826, Stop: 41044, Start Num: 95

Candidate Starts for MissDaisy\_63:

(39, 40667), (42, 40676), (Start: 95 @40826 has 19 MA's), (130, 40943), (145, 40979), (150, 40994), (152, 41000),

Gene: Mitti\_66 Start: 42093, Stop: 42311, Start Num: 95

Candidate Starts for Mitti\_66:

(39, 41934), (42, 41943), (Start: 95 @42093 has 19 MA's), (130, 42210), (145, 42246), (150, 42261),

Gene: ModicumRichard\_117 Start: 65073, Stop: 64867, Start Num: 101

Candidate Starts for ModicumRichard\_117:

(Start: 101 @65073 has 13 MA's), (121, 65001), (127, 64986), (131, 64971),

Gene: Moosehead\_50 Start: 31430, Stop: 31645, Start Num: 84

Candidate Starts for Moosehead\_50:

(Start: 84 @31430 has 71 MA's), (128, 31529), (152, 31601),

Gene: Mopey\_81 Start: 58381, Stop: 58695, Start Num: 50

Candidate Starts for Mopey\_81:

(24, 58237), (38, 58336), (41, 58354), (Start: 50 @58381 has 21 MA's), (Start: 52 @58390 has 1 MA's), (69, 58435), (72, 58444), (88, 58486),

Gene: Morgana\_124 Start: 67243, Stop: 67037, Start Num: 101

Candidate Starts for Morgana\_124:

(71, 67312), (Start: 101 @67243 has 13 MA's), (121, 67171), (127, 67156), (131, 67141),

Gene: Morkie\_49 Start: 32379, Stop: 32567, Start Num: 84

Candidate Starts for Morkie\_49:

(Start: 84 @32379 has 71 MA's), (114, 32454), (128, 32478), (136, 32511),

Gene: MrMiyagi\_94 Start: 58054, Stop: 58362, Start Num: 53

Candidate Starts for MrMiyagi\_94:

(Start: 53 @58054 has 3 MA's), (72, 58105), (83, 58141), (107, 58198), (143, 58288),

Gene: Mulch\_71 Start: 47994, Stop: 48194, Start Num: 99

Candidate Starts for Mulch\_71:

(66, 47910), (67, 47916), (85, 47970), (91, 47982), (Start: 99 @47994 has 10 MA's),

Gene: MunkgeeRoachy\_47 Start: 35379, Stop: 35146, Start Num: 84

Candidate Starts for MunkgeeRoachy\_47:

(Start: 84 @35379 has 71 MA's), (117, 35295), (135, 35235),

Gene: Murucutumbu\_65 Start: 43862, Stop: 44077, Start Num: 90

Candidate Starts for Murucutumbu\_65:

(60, 43784), (Start: 90 @43862 has 82 MA's), (120, 43949), (123, 43958),

Gene: Mynx\_65 Start: 43204, Stop: 43422, Start Num: 90

Candidate Starts for Mynx\_65:

(60, 43126), (Start: 90 @43204 has 82 MA's), (120, 43291), (123, 43300),

Gene: Nadeem\_71 Start: 47982, Stop: 48182, Start Num: 99

Candidate Starts for Nadeem\_71:

(66, 47898), (67, 47904), (85, 47958), (91, 47970), (Start: 99 @47982 has 10 MA's),

Gene: Nibb\_66 Start: 42981, Stop: 43193, Start Num: 94

Candidate Starts for Nibb\_66:

(12, 42507), (Start: 94 @42981 has 40 MA's), (115, 43044), (120, 43062), (123, 43071), (141, 43122),

Gene: Niklas\_66 Start: 43145, Stop: 43354, Start Num: 94

Candidate Starts for Niklas\_66:  
(Start: 94 @43145 has 40 MA's), (120, 43226), (123, 43235),

Gene: Nina\_48 Start: 36199, Stop: 35966, Start Num: 84  
Candidate Starts for Nina\_48:  
(Start: 84 @36199 has 71 MA's), (117, 36115), (135, 36055),

Gene: Nodigi\_56 Start: 38471, Stop: 38268, Start Num: 103  
Candidate Starts for Nodigi\_56:  
(Start: 103 @38471 has 8 MA's), (Start: 108 @38450 has 1 MA's), (132, 38369), (137, 38348), (142, 38339), (152, 38312),

Gene: Nova\_79 Start: 58848, Stop: 59162, Start Num: 50  
Candidate Starts for Nova\_79:  
(24, 58704), (38, 58803), (41, 58821), (Start: 50 @58848 has 21 MA's), (Start: 52 @58857 has 1 MA's), (69, 58902), (72, 58911), (88, 58953),

Gene: November\_63 Start: 42834, Stop: 43046, Start Num: 94  
Candidate Starts for November\_63:  
(2, 42144), (5, 42228), (6, 42234), (8, 42282), (9, 42309), (10, 42333), (13, 42375), (34, 42657), (Start: 94 @42834 has 40 MA's), (120, 42915), (123, 42924), (152, 42999),

Gene: Nymphadora\_57 Start: 40719, Stop: 40961, Start Num: 84  
Candidate Starts for Nymphadora\_57:  
(Start: 84 @40719 has 71 MA's), (128, 40845),

Gene: ObLaDi\_116 Start: 64475, Stop: 64269, Start Num: 101  
Candidate Starts for ObLaDi\_116:  
(Start: 101 @64475 has 13 MA's), (121, 64403), (127, 64388), (131, 64373),

Gene: Ohgeesy\_54 Start: 38818, Stop: 39060, Start Num: 84  
Candidate Starts for Ohgeesy\_54:  
(Start: 84 @38818 has 71 MA's), (128, 38944),

Gene: OkiRoe\_58 Start: 41679, Stop: 41891, Start Num: 96  
Candidate Starts for OkiRoe\_58:  
(Start: 96 @41679 has 22 MA's), (120, 41757), (127, 41781), (128, 41784), (136, 41811), (149, 41838), (154, 41865),

Gene: OmniCritical\_65 Start: 41983, Stop: 42201, Start Num: 95  
Candidate Starts for OmniCritical\_65:  
(39, 41824), (42, 41833), (Start: 95 @41983 has 19 MA's), (130, 42100), (145, 42136), (150, 42151),

Gene: Omnicron\_61 Start: 41791, Stop: 42003, Start Num: 96  
Candidate Starts for Omnicron\_61:  
(Start: 73 @41737 has 1 MA's), (Start: 96 @41791 has 22 MA's), (116, 41857), (120, 41869), (128, 41896), (149, 41950), (154, 41977),

Gene: OneDirection\_43 Start: 29772, Stop: 29960, Start Num: 84  
Candidate Starts for OneDirection\_43:  
(Start: 84 @29772 has 71 MA's), (113, 29844), (128, 29871), (136, 29904),

Gene: Oregano\_54 Start: 36212, Stop: 36427, Start Num: 84

Candidate Starts for Oregano\_54:  
(Start: 84 @36212 has 71 MA's), (128, 36311),

Gene: Orla\_56 Start: 38400, Stop: 38197, Start Num: 103  
Candidate Starts for Orla\_56:  
(Start: 103 @38400 has 8 MA's), (Start: 108 @38379 has 1 MA's), (132, 38298), (137, 38277), (142, 38268), (152, 38241),

Gene: Oscar\_67 Start: 43187, Stop: 43396, Start Num: 94  
Candidate Starts for Oscar\_67:  
(Start: 94 @43187 has 40 MA's), (104, 43208), (115, 43250), (120, 43268), (123, 43277), (129, 43301),

Gene: PBI1\_76 Start: 58502, Stop: 58816, Start Num: 50  
Candidate Starts for PBI1\_76:  
(27, 58385), (36, 58448), (Start: 50 @58502 has 21 MA's), (Start: 52 @58511 has 1 MA's), (69, 58556), (72, 58565),

Gene: PLOT\_80 Start: 58539, Stop: 58853, Start Num: 50  
Candidate Starts for PLOT\_80:  
(36, 58485), (Start: 50 @58539 has 21 MA's), (Start: 52 @58548 has 1 MA's), (69, 58593), (72, 58602), (88, 58644),

Gene: Padfoot\_63 Start: 42792, Stop: 43007, Start Num: 90  
Candidate Starts for Padfoot\_63:  
(Start: 90 @42792 has 82 MA's), (120, 42879), (123, 42888),

Gene: Padpat\_66 Start: 42909, Stop: 43127, Start Num: 90  
Candidate Starts for Padpat\_66:  
(Start: 90 @42909 has 82 MA's), (120, 42996), (123, 43005),

Gene: PantheRoc\_57 Start: 39540, Stop: 39782, Start Num: 84  
Candidate Starts for PantheRoc\_57:  
(Start: 84 @39540 has 71 MA's), (128, 39666),

Gene: Paola\_57 Start: 41282, Stop: 41494, Start Num: 96  
Candidate Starts for Paola\_57:  
(Start: 96 @41282 has 22 MA's), (120, 41360), (127, 41384), (128, 41387), (139, 41420), (149, 41441), (154, 41468),

Gene: Parada\_71 Start: 47994, Stop: 48194, Start Num: 99  
Candidate Starts for Parada\_71:  
(66, 47910), (67, 47916), (85, 47970), (91, 47982), (Start: 99 @47994 has 10 MA's),

Gene: Patt\_62 Start: 40550, Stop: 40768, Start Num: 95  
Candidate Starts for Patt\_62:  
(39, 40391), (42, 40400), (Start: 95 @40550 has 19 MA's), (130, 40667), (145, 40703), (150, 40718), (152, 40724),

Gene: Peanam\_66 Start: 43103, Stop: 43312, Start Num: 94  
Candidate Starts for Peanam\_66:  
(30, 42923), (Start: 94 @43103 has 40 MA's), (120, 43184), (123, 43193),

Gene: Peel\_63 Start: 42597, Stop: 42812, Start Num: 90



Candidate Starts for Peel\_63:

(Start: 90 @42597 has 82 MA's), (120, 42684), (123, 42693),

Gene: Penelope2018\_80 Start: 58570, Stop: 58884, Start Num: 50

Candidate Starts for Penelope2018\_80:

(27, 58453), (36, 58516), (Start: 50 @58570 has 21 MA's), (Start: 52 @58579 has 1 MA's), (69, 58624), (72, 58633),

Gene: Pepperoni\_44 Start: 31534, Stop: 31722, Start Num: 84

Candidate Starts for Pepperoni\_44:

(Start: 84 @31534 has 71 MA's), (89, 31543), (114, 31609), (128, 31633), (136, 31666),

Gene: Phalaborwa\_82 Start: 59041, Stop: 59355, Start Num: 50

Candidate Starts for Phalaborwa\_82:

(41, 59011), (Start: 50 @59041 has 21 MA's), (Start: 52 @59050 has 1 MA's), (69, 59095), (72, 59104),

Gene: Pharb\_63 Start: 42257, Stop: 42469, Start Num: 94

Candidate Starts for Pharb\_63:

(86, 42242), (Start: 94 @42257 has 40 MA's), (123, 42347),

Gene: PhelpsODU\_65 Start: 42337, Stop: 42549, Start Num: 94

Candidate Starts for PhelpsODU\_65:

(3, 41674), (4, 41698), (7, 41770), (15, 41923), (32, 42154), (Start: 94 @42337 has 40 MA's), (120, 42418), (123, 42427),

Gene: PhorbesPhlower\_47 Start: 31528, Stop: 31713, Start Num: 84

Candidate Starts for PhorbesPhlower\_47:

(Start: 84 @31528 has 71 MA's), (126, 31621), (128, 31627), (136, 31660),

Gene: Phrank\_67 Start: 42401, Stop: 42613, Start Num: 94

Candidate Starts for Phrank\_67:

(3, 41735), (4, 41759), (7, 41834), (15, 41987), (32, 42218), (Start: 94 @42401 has 40 MA's), (120, 42482), (123, 42491),

Gene: Phrappuccino\_126 Start: 92677, Stop: 92982, Start Num: 82

Candidate Starts for Phrappuccino\_126:

(22, 92419), (56, 92605), (70, 92638), (78, 92659), (Start: 82 @92677 has 2 MA's), (128, 92800), (134, 92824), (157, 92944), (158, 92977),

Gene: PhriskyACE\_50 Start: 36177, Stop: 36419, Start Num: 84

Candidate Starts for PhriskyACE\_50:

(19, 35853), (Start: 84 @36177 has 71 MA's), (128, 36303),

Gene: Piatt\_63 Start: 42792, Stop: 43007, Start Num: 90

Candidate Starts for Piatt\_63:

(Start: 90 @42792 has 82 MA's), (120, 42879), (123, 42888),

Gene: Pixie\_63 Start: 42430, Stop: 42642, Start Num: 94

Candidate Starts for Pixie\_63:

(Start: 94 @42430 has 40 MA's), (123, 42520), (152, 42595),

Gene: Pokerus\_63 Start: 42937, Stop: 43152, Start Num: 90

Candidate Starts for Pokerus\_63:

(60, 42859), (Start: 90 @42937 has 82 MA's), (120, 43024), (123, 43033),

Gene: Pollux\_56 Start: 40277, Stop: 40519, Start Num: 84

Candidate Starts for Pollux\_56:

(Start: 84 @40277 has 71 MA's), (128, 40403),

Gene: Powerball\_51 Start: 36303, Stop: 36545, Start Num: 84

Candidate Starts for Powerball\_51:

(19, 35979), (Start: 84 @36303 has 71 MA's), (128, 36429),

Gene: Prager\_80 Start: 58475, Stop: 58789, Start Num: 50

Candidate Starts for Prager\_80:

(24, 58331), (38, 58430), (41, 58448), (Start: 50 @58475 has 21 MA's), (Start: 52 @58484 has 1 MA's), (69, 58529), (72, 58538),

Gene: Prithvi\_65 Start: 43082, Stop: 43297, Start Num: 90

Candidate Starts for Prithvi\_65:

(60, 43004), (Start: 90 @43082 has 82 MA's), (120, 43169), (123, 43178),

Gene: Psycho\_57 Start: 39909, Stop: 40121, Start Num: 96

Candidate Starts for Psycho\_57:

(Start: 96 @39909 has 22 MA's), (120, 39987), (127, 40011), (128, 40014), (136, 40041), (149, 40068),

Gene: Pupper\_157 Start: 111884, Stop: 112147, Start Num: 74

Candidate Starts for Pupper\_157:

(55, 111839), (72, 111881), (Start: 74 @111884 has 3 MA's), (128, 112034), (137, 112070), (144, 112082),

Gene: Pytheas\_57 Start: 41776, Stop: 42018, Start Num: 84

Candidate Starts for Pytheas\_57:

(16, 41395), (Start: 84 @41776 has 71 MA's), (128, 41902),

Gene: Quasar\_49 Start: 36624, Stop: 36391, Start Num: 84

Candidate Starts for Quasar\_49:

(Start: 84 @36624 has 71 MA's), (117, 36540), (135, 36480),

Gene: QuincyRose\_62 Start: 42817, Stop: 43032, Start Num: 90

Candidate Starts for QuincyRose\_62:

(Start: 90 @42817 has 82 MA's), (120, 42904), (123, 42913),

Gene: Ramen\_64 Start: 42442, Stop: 42657, Start Num: 90

Candidate Starts for Ramen\_64:

(Start: 90 @42442 has 82 MA's), (120, 42529), (123, 42538),

Gene: RanchParmCat\_53 Start: 37255, Stop: 37052, Start Num: 103

Candidate Starts for RanchParmCat\_53:

(Start: 103 @37255 has 8 MA's), (106, 37243), (Start: 108 @37234 has 1 MA's), (111, 37228), (125, 37177), (132, 37153),

Gene: Rando14\_59 Start: 39518, Stop: 39730, Start Num: 96

Candidate Starts for Rando14\_59:

(66, 39443), (68, 39452), (Start: 73 @39464 has 1 MA's), (Start: 96 @39518 has 22 MA's), (120, 39596), (127, 39620), (128, 39623), (149, 39677), (154, 39704),

Gene: Raphaella\_49 Start: 30457, Stop: 30648, Start Num: 101

Candidate Starts for Raphaella\_49:

(Start: 101 @30457 has 13 MA's),

Gene: Rapunzel97\_65 Start: 42892, Stop: 43107, Start Num: 90

Candidate Starts for Rapunzel97\_65:

(60, 42814), (Start: 90 @42892 has 82 MA's), (120, 42979), (123, 42988),

Gene: RedBaron\_51 Start: 36246, Stop: 36013, Start Num: 84

Candidate Starts for RedBaron\_51:

(Start: 84 @36246 has 71 MA's), (117, 36162),

Gene: RedWattleHog\_174 Start: 111466, Stop: 111675, Start Num: 97

Candidate Starts for RedWattleHog\_174:

(Start: 94 @111463 has 40 MA's), (Start: 97 @111466 has 6 MA's), (147, 111625), (155, 111655),

Gene: Reptar3000\_63 Start: 40538, Stop: 40756, Start Num: 95

Candidate Starts for Reptar3000\_63:

(39, 40379), (42, 40388), (Start: 95 @40538 has 19 MA's), (130, 40655), (145, 40691), (150, 40706), (152, 40712),

Gene: Richo\_66 Start: 43084, Stop: 43293, Start Num: 94

Candidate Starts for Richo\_66:

(30, 42904), (Start: 94 @43084 has 40 MA's), (120, 43165), (123, 43174),

Gene: Rosmarinus\_63 Start: 42583, Stop: 42798, Start Num: 90

Candidate Starts for Rosmarinus\_63:

(Start: 90 @42583 has 82 MA's), (120, 42670), (123, 42679),

Gene: Ruthiejr\_67 Start: 41964, Stop: 42182, Start Num: 95

Candidate Starts for Ruthiejr\_67:

(39, 41805), (42, 41814), (Start: 95 @41964 has 19 MA's), (130, 42081), (145, 42117), (150, 42132),

Gene: Ruthy\_52 Start: 39090, Stop: 39332, Start Num: 84

Candidate Starts for Ruthy\_52:

(Start: 84 @39090 has 71 MA's), (89, 39099), (128, 39216),

Gene: SCentae\_156 Start: 112038, Stop: 112301, Start Num: 74

Candidate Starts for SCentae\_156:

(55, 111993), (72, 112035), (Start: 74 @112038 has 3 MA's), (128, 112188), (137, 112224), (144, 112236),

Gene: Sakai\_48 Start: 30191, Stop: 30385, Start Num: 101

Candidate Starts for Sakai\_48:

(Start: 101 @30191 has 13 MA's), (120, 30260), (151, 30338),

Gene: SamScheppers\_64 Start: 42393, Stop: 42611, Start Num: 95

Candidate Starts for SamScheppers\_64:

(39, 42234), (42, 42243), (Start: 95 @42393 has 19 MA's), (130, 42510), (145, 42546), (150, 42561),

Gene: SamuelLPlaqson\_64 Start: 43328, Stop: 43543, Start Num: 90

Candidate Starts for SamuelLPlaqson\_64:

(Start: 90 @43328 has 82 MA's), (120, 43415), (123, 43424),

Gene: Scarlett\_68 Start: 43514, Stop: 43726, Start Num: 94

Candidate Starts for Scarlett\_68:

(Start: 94 @43514 has 40 MA's), (104, 43535), (115, 43577), (120, 43595), (123, 43604), (129, 43628),

Gene: Settecandela\_126 Start: 92677, Stop: 92982, Start Num: 82

Candidate Starts for Settecandela\_126:

(22, 92419), (56, 92605), (70, 92638), (78, 92659), (Start: 82 @92677 has 2 MA's), (128, 92800), (134, 92824), (157, 92944), (158, 92977),

Gene: SgtBeansprout\_52 Start: 39754, Stop: 39963, Start Num: 94

Candidate Starts for SgtBeansprout\_52:

(Start: 94 @39754 has 40 MA's), (120, 39835), (123, 39844),

Gene: Shadow1\_68 Start: 42852, Stop: 43064, Start Num: 94

Candidate Starts for Shadow1\_68:

(Start: 94 @42852 has 40 MA's), (120, 42933), (123, 42942),

Gene: Shaobing\_66 Start: 43121, Stop: 43330, Start Num: 94

Candidate Starts for Shaobing\_66:

(30, 42941), (Start: 94 @43121 has 40 MA's), (120, 43202), (123, 43211),

Gene: ShedlockHolmes\_65 Start: 42949, Stop: 43161, Start Num: 94

Candidate Starts for ShedlockHolmes\_65:

(Start: 94 @42949 has 40 MA's), (123, 43039), (152, 43114),

Gene: ShiaSurprise\_64 Start: 42792, Stop: 43007, Start Num: 90

Candidate Starts for ShiaSurprise\_64:

(Start: 90 @42792 has 82 MA's), (120, 42879), (123, 42888),

Gene: Shlim410\_53 Start: 40090, Stop: 40332, Start Num: 84

Candidate Starts for Shlim410\_53:

(Start: 84 @40090 has 71 MA's), (128, 40216),

Gene: Sidious\_53 Start: 38484, Stop: 38726, Start Num: 84

Candidate Starts for Sidious\_53:

(Start: 84 @38484 has 71 MA's), (128, 38610),

Gene: SirHarley\_82 Start: 58970, Stop: 59284, Start Num: 50

Candidate Starts for SirHarley\_82:

(36, 58916), (Start: 50 @58970 has 21 MA's), (Start: 52 @58979 has 1 MA's), (69, 59024), (72, 59033), (88, 59075),

Gene: SketchMex\_50 Start: 36207, Stop: 35971, Start Num: 84

Candidate Starts for SketchMex\_50:

(79, 36225), (Start: 84 @36207 has 71 MA's), (135, 36060), (139, 36048), (141, 36045),

Gene: Skog\_217 Start: 141536, Stop: 141781, Start Num: 81

Candidate Starts for Skog\_217:

(Start: 81 @141536 has 1 MA's), (112, 141623), (117, 141641), (128, 141668), (132, 141683), (137, 141701),

Gene: Slarp\_66 Start: 41921, Stop: 42139, Start Num: 95  
Candidate Starts for Slarp\_66:  
(39, 41762), (42, 41771), (Start: 95 @41921 has 19 MA's), (130, 42038), (145, 42074), (150, 42089),

Gene: Slimphazie\_64 Start: 42892, Stop: 43107, Start Num: 90  
Candidate Starts for Slimphazie\_64:  
(60, 42814), (Start: 90 @42892 has 82 MA's), (120, 42979), (123, 42988),

Gene: SoSeph\_58 Start: 41654, Stop: 41866, Start Num: 96  
Candidate Starts for SoSeph\_58:  
(Start: 96 @41654 has 22 MA's), (120, 41732), (127, 41756), (128, 41759), (139, 41792), (149, 41813),  
(154, 41840),

Gene: Spock\_63 Start: 42596, Stop: 42811, Start Num: 90  
Candidate Starts for Spock\_63:  
(Start: 90 @42596 has 82 MA's), (120, 42683), (123, 42692),

Gene: SteamedHams\_49 Start: 35394, Stop: 35161, Start Num: 84  
Candidate Starts for SteamedHams\_49:  
(40, 35529), (43, 35520), (45, 35517), (57, 35469), (62, 35457), (Start: 84 @35394 has 71 MA's), (117, 35310), (135, 35250),

Gene: Stinson\_65 Start: 43220, Stop: 43435, Start Num: 90  
Candidate Starts for Stinson\_65:  
(Start: 90 @43220 has 82 MA's), (120, 43307), (123, 43316),

Gene: Stormageddon\_175 Start: 112431, Stop: 112640, Start Num: 97  
Candidate Starts for Stormageddon\_175:  
(Start: 94 @112428 has 40 MA's), (Start: 97 @112431 has 6 MA's), (147, 112590), (155, 112620),

Gene: Sulley\_63 Start: 42656, Stop: 42871, Start Num: 90  
Candidate Starts for Sulley\_63:  
(Start: 90 @42656 has 82 MA's), (120, 42743), (123, 42752),

Gene: Sunflower1121\_69 Start: 42998, Stop: 43210, Start Num: 94  
Candidate Starts for Sunflower1121\_69:  
(Start: 94 @42998 has 40 MA's), (120, 43079), (123, 43088),

Gene: SweatNTears\_51 Start: 36160, Stop: 35927, Start Num: 84  
Candidate Starts for SweatNTears\_51:  
(Start: 84 @36160 has 71 MA's), (117, 36076), (135, 36016),

Gene: Syra333\_67 Start: 42711, Stop: 42923, Start Num: 94  
Candidate Starts for Syra333\_67:  
(32, 42528), (Start: 94 @42711 has 40 MA's), (120, 42792), (123, 42801),

Gene: TClif\_64 Start: 42546, Stop: 42758, Start Num: 94  
Candidate Starts for TClif\_64:  
(Start: 94 @42546 has 40 MA's), (120, 42627), (123, 42636), (152, 42711),

Gene: TPA4\_81 Start: 53987, Stop: 54289, Start Num: 63  
Candidate Starts for TPA4\_81:  
(1, 53147), (17, 53672), (31, 53882), (51, 53957), (63, 53987),

Gene: Tachez\_63 Start: 42440, Stop: 42655, Start Num: 90  
Candidate Starts for Tachez\_63:  
(Start: 90 @42440 has 82 MA's), (120, 42527), (123, 42536),

Gene: TaiwanKao\_66 Start: 43144, Stop: 43359, Start Num: 90  
Candidate Starts for TaiwanKao\_66:  
(60, 43066), (Start: 90 @43144 has 82 MA's), (120, 43231), (123, 43240),

Gene: Taquito\_65 Start: 42156, Stop: 42374, Start Num: 95  
Candidate Starts for Taquito\_65:  
(39, 41997), (42, 42006), (Start: 95 @42156 has 19 MA's), (130, 42273), (145, 42309), (150, 42324),

Gene: ThankyouJordi\_56 Start: 40759, Stop: 41001, Start Num: 84  
Candidate Starts for ThankyouJordi\_56:  
(37, 40612), (40, 40627), (43, 40636), (65, 40702), (Start: 84 @40759 has 71 MA's), (128, 40885),

Gene: Thimann\_54 Start: 37092, Stop: 37307, Start Num: 84  
Candidate Starts for Thimann\_54:  
(Start: 84 @37092 has 71 MA's), (128, 37191),

Gene: Thoth\_80 Start: 58624, Stop: 58938, Start Num: 50  
Candidate Starts for Thoth\_80:  
(27, 58507), (36, 58570), (Start: 50 @58624 has 21 MA's), (Start: 52 @58633 has 1 MA's), (69, 58678),  
(72, 58687),

Gene: Thyatira\_60 Start: 43612, Stop: 43824, Start Num: 96  
Candidate Starts for Thyatira\_60:  
(Start: 96 @43612 has 22 MA's), (120, 43690), (127, 43714), (128, 43717), (139, 43750), (149, 43771),  
(154, 43798),

Gene: Tierra\_67 Start: 43212, Stop: 43424, Start Num: 94  
Candidate Starts for Tierra\_67:  
(3, 42546), (4, 42570), (7, 42645), (15, 42798), (32, 43029), (Start: 94 @43212 has 40 MA's), (120,  
43293), (123, 43302),

Gene: Tiff81\_46 Start: 28970, Stop: 29161, Start Num: 101  
Candidate Starts for Tiff81\_46:  
(Start: 101 @28970 has 13 MA's),

Gene: TimTam\_57 Start: 40719, Stop: 40961, Start Num: 84  
Candidate Starts for TimTam\_57:  
(Start: 84 @40719 has 71 MA's), (128, 40845),

Gene: TingHuaYa\_67 Start: 42388, Stop: 42606, Start Num: 90  
Candidate Starts for TingHuaYa\_67:  
(44, 42253), (60, 42310), (Start: 90 @42388 has 82 MA's), (120, 42475), (123, 42484),

Gene: TiniBug\_64 Start: 43324, Stop: 43539, Start Num: 90  
Candidate Starts for TiniBug\_64:  
(Start: 90 @43324 has 82 MA's), (120, 43411), (123, 43420),

Gene: Tiri\_64 Start: 42728, Stop: 42943, Start Num: 90

Candidate Starts for Tiri\_64:

(Start: 90 @42728 has 82 MA's), (120, 42815), (123, 42824),

Gene: Tolls\_50 Start: 35802, Stop: 35551, Start Num: 84

Candidate Starts for Tolls\_50:

(Start: 84 @35802 has 71 MA's), (87, 35796), (128, 35673), (139, 35628),

Gene: Topper\_63 Start: 42595, Stop: 42810, Start Num: 90

Candidate Starts for Topper\_63:

(Start: 90 @42595 has 82 MA's), (120, 42682), (123, 42691),

Gene: TreyKay\_65 Start: 43082, Stop: 43297, Start Num: 90

Candidate Starts for TreyKay\_65:

(60, 43004), (Start: 90 @43082 has 82 MA's), (120, 43169), (123, 43178),

Gene: TribelTrouble\_64 Start: 43429, Stop: 43641, Start Num: 94

Candidate Starts for TribelTrouble\_64:

(14, 43003), (32, 43246), (Start: 94 @43429 has 40 MA's), (123, 43519),

Gene: Trogglehumper\_5 Start: 2263, Stop: 2457, Start Num: 100

Candidate Starts for Trogglehumper\_5:

(Start: 100 @2263 has 1 MA's), (114, 2314), (119, 2332), (126, 2356),

Gene: Troje\_52 Start: 36545, Stop: 36309, Start Num: 84

Candidate Starts for Troje\_52:

(79, 36563), (Start: 84 @36545 has 71 MA's), (135, 36398), (139, 36386), (141, 36383),

Gene: Troll4\_79 Start: 58537, Stop: 58851, Start Num: 50

Candidate Starts for Troll4\_79:

(24, 58393), (38, 58492), (41, 58510), (Start: 50 @58537 has 21 MA's), (Start: 52 @58546 has 1 MA's), (69, 58591), (72, 58600), (88, 58642),

Gene: TruffulaTree\_64 Start: 42888, Stop: 43103, Start Num: 90

Candidate Starts for TruffulaTree\_64:

(60, 42810), (Start: 90 @42888 has 82 MA's), (120, 42975), (123, 42984),

Gene: Twinkle\_54 Start: 41149, Stop: 41391, Start Num: 84

Candidate Starts for Twinkle\_54:

(Start: 84 @41149 has 71 MA's), (128, 41275),

Gene: Twitch\_63 Start: 42597, Stop: 42812, Start Num: 90

Candidate Starts for Twitch\_63:

(Start: 90 @42597 has 82 MA's), (120, 42684), (123, 42693),

Gene: Typha\_89 Start: 58872, Stop: 59093, Start Num: 97

Candidate Starts for Typha\_89:

(Start: 97 @58872 has 6 MA's), (109, 58908), (116, 58938),

Gene: Typhonmarchy\_49 Start: 35740, Stop: 35507, Start Num: 84

Candidate Starts for Typhonmarchy\_49:

(Start: 84 @35740 has 71 MA's), (117, 35656), (135, 35596),

Gene: Unicorn\_65 Start: 42337, Stop: 42549, Start Num: 94

Candidate Starts for Unicorn\_65:  
(3, 41674), (4, 41698), (7, 41770), (15, 41923), (32, 42154), (Start: 94 @42337 has 40 MA's), (120, 42418), (123, 42427),

Gene: Urkel\_64 Start: 43328, Stop: 43543, Start Num: 90  
Candidate Starts for Urkel\_64:  
(Start: 90 @43328 has 82 MA's), (120, 43415), (123, 43424),

Gene: Validus\_68 Start: 43466, Stop: 43675, Start Num: 94  
Candidate Starts for Validus\_68:  
(Start: 94 @43466 has 40 MA's), (120, 43547), (123, 43556), (152, 43631),

Gene: VanLee\_109 Start: 57771, Stop: 57962, Start Num: 101  
Candidate Starts for VanLee\_109:  
(Start: 101 @57771 has 13 MA's), (154, 57936),

Gene: Veliki\_65 Start: 42859, Stop: 43077, Start Num: 90  
Candidate Starts for Veliki\_65:  
(60, 42781), (Start: 90 @42859 has 82 MA's), (120, 42946), (123, 42955),

Gene: Visconti\_81 Start: 58585, Stop: 58899, Start Num: 50  
Candidate Starts for Visconti\_81:  
(27, 58468), (36, 58531), (Start: 50 @58585 has 21 MA's), (Start: 52 @58594 has 1 MA's), (69, 58639), (72, 58648), (88, 58690),

Gene: ViviJ\_55 Start: 39373, Stop: 39585, Start Num: 96  
Candidate Starts for ViviJ\_55:  
(66, 39298), (68, 39307), (Start: 73 @39319 has 1 MA's), (Start: 96 @39373 has 22 MA's), (104, 39391), (120, 39451), (127, 39475), (128, 39478), (136, 39505), (149, 39532), (156, 39580),

Gene: Vopal\_52 Start: 33686, Stop: 33877, Start Num: 101  
Candidate Starts for Vopal\_52:  
(Start: 101 @33686 has 13 MA's),

Gene: WaldoWhy\_82 Start: 58548, Stop: 58862, Start Num: 50  
Candidate Starts for WaldoWhy\_82:  
(27, 58431), (36, 58494), (Start: 50 @58548 has 21 MA's), (Start: 52 @58557 has 1 MA's), (69, 58602), (72, 58611),

Gene: Waterfoul\_59 Start: 41716, Stop: 41928, Start Num: 96  
Candidate Starts for Waterfoul\_59:  
(Start: 96 @41716 has 22 MA's), (120, 41794), (127, 41818), (128, 41821), (139, 41854), (149, 41875), (154, 41902),

Gene: WelcomeAyanna\_56 Start: 40906, Stop: 41148, Start Num: 84  
Candidate Starts for WelcomeAyanna\_56:  
(37, 40759), (40, 40774), (43, 40783), (65, 40849), (Start: 84 @40906 has 71 MA's), (128, 41032),

Gene: WheatThin\_71 Start: 47982, Stop: 48182, Start Num: 99  
Candidate Starts for WheatThin\_71:  
(66, 47898), (67, 47904), (85, 47958), (91, 47970), (Start: 99 @47982 has 10 MA's),

Gene: Wintermute\_66 Start: 42151, Stop: 42369, Start Num: 95



Candidate Starts for Wintermute\_66:

(39, 41992), (42, 42001), (Start: 95 @42151 has 19 MA's), (130, 42268), (145, 42304), (150, 42319),

Gene: Ximenita\_69 Start: 43037, Stop: 43249, Start Num: 94

Candidate Starts for Ximenita\_69:

(32, 42854), (Start: 94 @43037 has 40 MA's), (120, 43118), (123, 43127),

Gene: Y10\_64 Start: 42079, Stop: 42297, Start Num: 95

Candidate Starts for Y10\_64:

(39, 41920), (42, 41929), (Start: 95 @42079 has 19 MA's), (130, 42196), (145, 42232), (150, 42247),

Gene: Y2\_64 Start: 42079, Stop: 42297, Start Num: 95

Candidate Starts for Y2\_64:

(39, 41920), (42, 41929), (Start: 95 @42079 has 19 MA's), (130, 42196), (145, 42232), (150, 42247),

Gene: Yakult\_51 Start: 37137, Stop: 36952, Start Num: 108

Candidate Starts for Yakult\_51:

(Start: 82 @37200 has 2 MA's), (Start: 103 @37158 has 8 MA's), (Start: 108 @37137 has 1 MA's),  
(119, 37098), (132, 37056), (138, 37032), (152, 36996),

Gene: Yarn\_46 Start: 35565, Stop: 35314, Start Num: 84

Candidate Starts for Yarn\_46:

(Start: 84 @35565 has 71 MA's), (87, 35559), (128, 35436), (139, 35391),

Gene: Yeezy\_53 Start: 37368, Stop: 37610, Start Num: 84

Candidate Starts for Yeezy\_53:

(Start: 84 @37368 has 71 MA's), (128, 37494),

Gene: YoungHarleezy\_50 Start: 31023, Stop: 31214, Start Num: 101

Candidate Starts for YoungHarleezy\_50:

(Start: 101 @31023 has 13 MA's),

Gene: YoureAdopted\_63 Start: 43008, Stop: 43223, Start Num: 90

Candidate Starts for YoureAdopted\_63:

(60, 42930), (Start: 90 @43008 has 82 MA's), (120, 43095), (123, 43104),

Gene: Yummy\_52 Start: 36254, Stop: 36018, Start Num: 84

Candidate Starts for Yummy\_52:

(79, 36272), (Start: 84 @36254 has 71 MA's), (135, 36107), (139, 36095), (141, 36092),

Gene: Yunkel11\_68 Start: 42904, Stop: 43122, Start Num: 90

Candidate Starts for Yunkel11\_68:

(60, 42826), (Start: 90 @42904 has 82 MA's), (120, 42991), (123, 43000),

Gene: Zabiza\_58 Start: 38745, Stop: 38960, Start Num: 90

Candidate Starts for Zabiza\_58:

(Start: 90 @38745 has 82 MA's), (120, 38832), (123, 38841),

Gene: Zavala\_66 Start: 43164, Stop: 43382, Start Num: 90

Candidate Starts for Zavala\_66:

(60, 43086), (Start: 90 @43164 has 82 MA's), (120, 43251), (123, 43260),