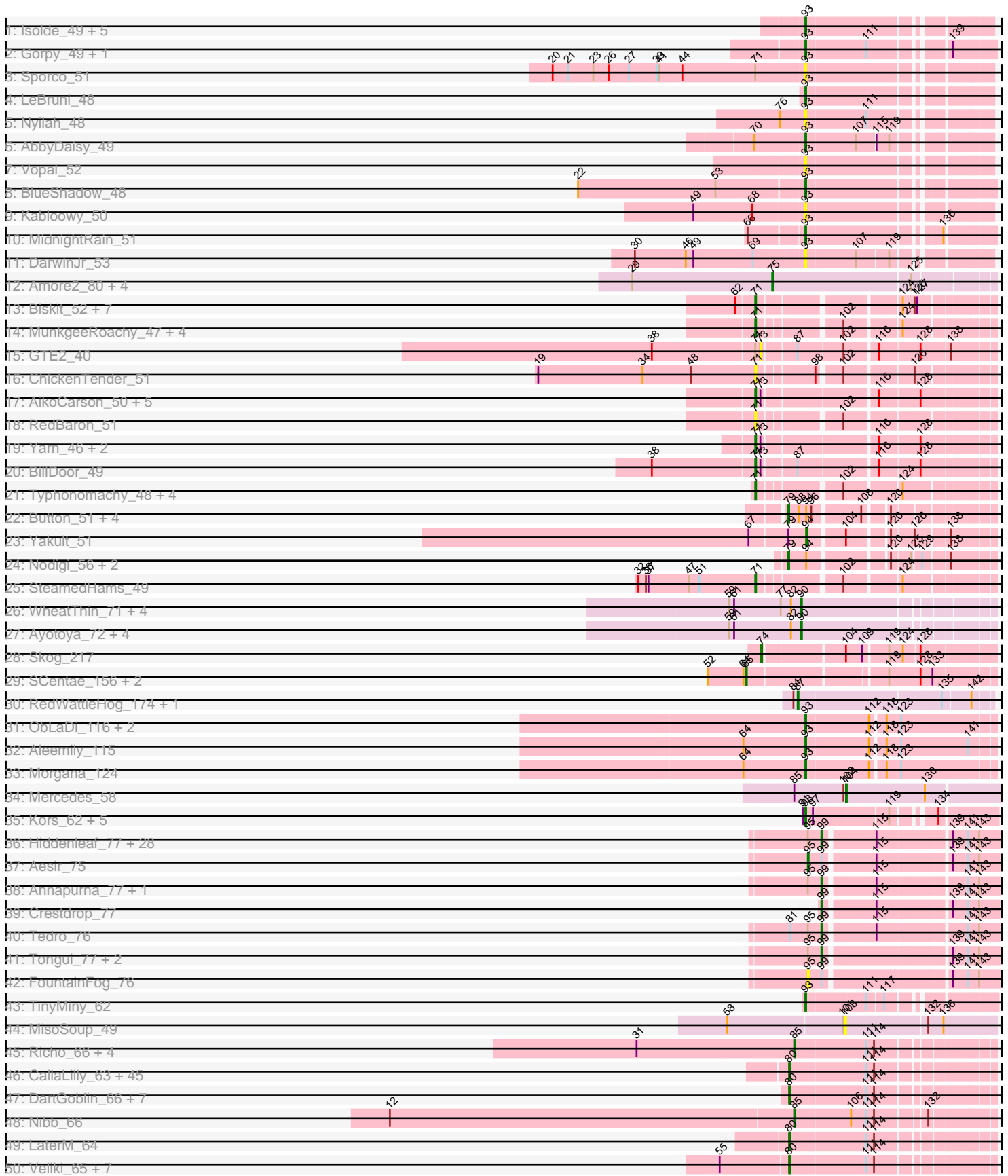


Pham 296164





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 296164 Report

This analysis was run 04/25/26 on database version 644.

Pham number 296164 has 332 members, 36 are drafts.

Phages represented in each track:

- Track 1 : Isolde\_49, Tiff81\_46, Raphaella\_49, Auxilium\_46, YoungHarleezy\_50, Mapleville\_47
- Track 2 : Gorpy\_49, Sakai\_48
- Track 3 : Sporco\_51
- Track 4 : LeBruni\_48
- Track 5 : Nyilah\_48
- Track 6 : AbbyDaisy\_49
- Track 7 : Vopal\_52
- Track 8 : BlueShadow\_48
- Track 9 : Kabloowy\_50
- Track 10 : MidnightRain\_51
- Track 11 : DarwinJr\_53
- Track 12 : Amore2\_80, Austin\_79, GMA7\_69, HayZem\_81, GTE7\_68
- Track 13 : Biskit\_52, Troje\_52, SketchMex\_50, MScarn\_54, Buttrmlkdreams\_52, Blondies\_53, Horseradish\_52, Yummy\_52
- Track 14 : MunkgeeRoachy\_47, Bubble\_47, Quasar\_49, Nina\_48, SweatNTears\_51
- Track 15 : GTE2\_40
- Track 16 : ChickenTender\_51
- Track 17 : AikoCarson\_50, Emalyn\_48, CanesSauce\_48, CaramelLatte\_48, Amok\_50, ChocoMunchkin\_48
- Track 18 : RedBaron\_51
- Track 19 : Yarn\_46, AndPeggy\_46, Tolls\_50
- Track 20 : BillDoor\_49
- Track 21 : Typhonmarchy\_48, Burnsey\_49, Agatha\_49, Cozz\_47, Axym\_48
- Track 22 : Button\_51, RanchParmCat\_53, Margaret\_54, GiKK\_53, Jamzy\_53
- Track 23 : Yakult\_51
- Track 24 : Nodigi\_56, Orla\_56, Hexbug\_56
- Track 25 : SteamedHams\_49
- Track 26 : WheatThin\_71, Brylie\_71, Nadeem\_71, Parada\_71, Mulch\_71
- Track 27 : Ayotoya\_72, GrandSlam\_73, Hamood\_73, DelRio\_72, Chop\_73
- Track 28 : Skog\_217
- Track 29 : SCentae\_156, CherryTomatoes\_158, Pupper\_157
- Track 30 : RedWattleHog\_174, Stormageddon\_175
- Track 31 : ObLaDi\_116, ModicumRichard\_117, Cafasso\_117
- Track 32 : Aleemily\_115
- Track 33 : Morgana\_124
- Track 34 : Mercedes\_58

- Track 35 : Kors\_62, Bramble\_62, Sparcetus\_62, LordBart\_62, RikSengupta\_62, Ajin\_62
- Track 36 : Hiddenleaf\_77, JingleBells\_76, PhunaPhoke\_76, AnnaSerena\_76, OverHedge\_75, Potty\_75, Neptune\_76, NarutoRun\_76, Cybele\_76, Pharpay\_75, JDawG\_75, Krampus\_76, Chivey\_77, Anakin\_76, Artiphact\_76, Erudite\_75, OhDear\_76, MortySmith\_74, FreddieHg\_77, Haunter\_77, Poultruss\_75, CoolCookie\_75, Snakehole\_77, Dauntless\_75, Kate\_76, SilentWarrior\_77, DannyDe\_77, Rachella\_76, Gilda\_76
- Track 37 : Aesir\_75
- Track 38 : Annapurna\_77, Karate\_75
- Track 39 : Crestdrop\_77
- Track 40 : Tedro\_76
- Track 41 : Tongui\_77, Rie18\_76, Hager\_78
- Track 42 : FountainFog\_76
- Track 43 : TinyMiny\_62
- Track 44 : MisoSoup\_49
- Track 45 : Richo\_66, Dartin\_66, McMater\_66, Peanam\_66, Shaobing\_66
- Track 46 : CallaLilly\_63, BGIlluviae\_63, BEEEST\_63, Jarvi\_63, Twitch\_63, Piatt\_63, Blizzard\_63, Atiba\_64, Hyperbowlee\_63, Adephegia\_63, Ramen\_64, Zabiza\_58, Homura\_63, Tachez\_63, CaseJules\_65, Spock\_63, Pisa1\_63, Rosmarinus\_63, QuincyRose\_62, ShiaSurprise\_64, Lunahalos\_63, Boiiii\_63, Apocalypse\_66, Durfee\_63, Sulley\_63, Llorens\_63, Joy99\_63, MeaningOfLife\_64, Tiri\_64, Peel\_63, Ganymede\_64, Belladonna\_63, Adonis\_63, Beezoo\_65, Padfoot\_63, Topper\_63, Angelica\_63, CREW\_63, Inky\_63, HedwigODU\_63, Asayake\_63, Jeckyll\_63, Capricorn\_63, Dalmuri\_63, Geraldini\_66, ActinUp\_63
- Track 47 : DartGoblin\_66, Anma\_65, TiniBug\_64, DrHayes\_64, Urkel\_64, SamuelLPlaqson\_64, Bella96\_64, Anaya\_66
- Track 48 : Nibb\_66
- Track 49 : LaterM\_64
- Track 50 : Veliki\_65, JAWS\_64, Efra2\_69, Yunkel11\_68, BaghaKamala\_63, Zavala\_66, Guanica15\_68, Mynx\_65
- Track 51 : MacKat\_59, Ageofdapage\_67, Emerson\_65, Clipper\_67, Padpat\_66
- Track 52 : Stinson\_65
- Track 53 : Prithvi\_65, Devera\_71, LindNT\_63, Rapunzel97\_65, BarrelRoll\_64, Pokerus\_63, TruffulaTree\_64, YoureAdopted\_63, TaiwanKao\_66, Slimphazie\_64, CrimD\_65, Dole\_69, Murucutumbu\_65, TreyKay\_65, Illumine\_69
- Track 54 : Bern\_65, Deby\_64, CheetoDust\_63, Jayhawk\_65
- Track 55 : Chavito\_66
- Track 56 : LilPharaoh\_52, SgtBeansprout\_52
- Track 57 : Niklas\_66
- Track 58 : Chris\_66
- Track 59 : KiSi\_68, Oscar\_67, LeMond\_67, Scarlett\_68
- Track 60 : Megsy\_66
- Track 61 : MarkPhew\_66
- Track 62 : Validus\_68
- Track 63 : LastHope\_68
- Track 64 : TingHuaYa\_67
- Track 65 : Curiosium\_67
- Track 66 : Keshu\_66
- Track 67 : Hurricane\_64, Lea83\_64, ShedlockHolmes\_65, Pixie\_63
- Track 68 : MacnCheese\_66
- Track 69 : TribleTrouble\_64
- Track 70 : Pharb\_63

- Track 71 : Eponine\_68, Y2\_64, Cheetobro\_66, DanSyl44\_69, SamScheppers\_64, Malthus\_67, Y10\_64, YasnayaPolyana\_65, Fionnbharth\_66, Slarp\_66, Mitti\_66, Wintermute\_66, Qhanda\_68, Juliette\_68, Ruthiejr\_67, Chancellor\_66, OmniCritical\_65, Lebo14\_65, JF1\_66, Kraw\_66, Taquito\_65
- Track 72 : Reptar3000\_63, MissDaisy\_63, Bobquesha\_67, Patt\_62
- Track 73 : Leston\_57, Heftyboy\_58, Waterfoul\_59, SoSeph\_58, Paola\_57, Guillsminger\_58, Thyatira\_60, Feyre\_60
- Track 74 : Larva\_58, AlleyCat\_59, Psycho\_57, Dadosky\_59
- Track 75 : DoubleChamp\_54, Agent47\_57, BananenDer11\_54, LilDirt\_54, Collard\_55, InvictusManeo\_55, ViviJ\_56
- Track 76 : Gengar\_57, OkiRoe\_58, Miryou\_61
- Track 77 : Edugator\_56
- Track 78 : Omnicron\_61
- Track 79 : Kratio\_55
- Track 80 : Rando14\_59
- Track 81 : Ximenita\_69, Syra333\_67
- Track 82 : Fefferhead\_61, Amgine\_62, Ellie\_59, Applecrisp\_60
- Track 83 : Cain\_67, Tierra\_67, Bryler\_67, Phrank\_67
- Track 84 : Shadow1\_68, Sunflower1121\_69
- Track 85 : PhelpsODU\_65, Unicorn\_65
- Track 86 : Hammy\_63
- Track 87 : Amohnition\_63, DARTH\_P\_63
- Track 88 : Marshawn\_63
- Track 89 : Krueger\_68
- Track 90 : November\_61
- Track 91 : TClif\_64
- Track 92 : Aminay\_62
- Track 93 : VanLee\_109
- Track 94 : Colossa\_108
- Track 95 : Kevin1\_59
- Track 96 : Hilltopfarm\_91, Faiyaz\_91, Typha\_89, AuntGwenStacy\_89
- Track 97 : Bipper\_99
- Track 98 : Cracklewink\_99
- Track 99 : TPA4\_81
- Track 100 : 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 80, it was called in 86 of the 296 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, Anma\_65, Apocalypse\_66, Asayake\_63, Atiba\_64, BEEST\_63, BGilluviae\_63, BaghaKamala\_63, BarrelRoll\_64, Beezoo\_65, Bella96\_64, Belladonna\_63, Bern\_65, Blizzard\_63, Boiiii\_63, CREW\_63, CallaLilly\_63, Capricorn\_63, CaseJules\_65, CheetoDust\_63, Clipper\_67, CrimD\_65, Curiosium\_67, Dalmuri\_63, DartGoblin\_66, 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, MackKat\_59, MeaningOfLife\_64, Megsy\_66, Murucutumbu\_65, Mynx\_65, Padfoot\_63, Padpat\_66, Peel\_63, Piatt\_63, Pisa1\_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, Aesir\_75, Agatha\_49, Agent47\_57, AikoCarson\_50, Ajin\_62, Aleemily\_115, AlleyCat\_59, Amgine\_62, Aminay\_62, Amohnition\_63, Amok\_50, Amore2\_80, Anakin\_76, AndPeggy\_46, AnnaSerena\_76, Annapurna\_77, Applecrisp\_60, Artiphact\_76, AuntGwenStacy\_89, Austin\_79, Auxilium\_46, Axym\_48, Ayotoya\_72, BananenDer11\_54, BillDoor\_49, Bipper\_99, Biskit\_52, Blondies\_53, BlueShadow\_48, Bobquesha\_67, Bramble\_62, Bryler\_67, Brylie\_71, Bubble\_47, Burnsey\_49, Button\_51, Buttrmlkdreams\_52, Cafasso\_117, Cain\_67, CanesSauce\_48, CaramellLatte\_48, Chancellor\_66, Chavito\_66, Cheetobro\_66, CherryTomatoes\_158, ChickenTender\_51, Chivey\_77, ChocoMunchkin\_48, Chop\_73, Chris\_66, Collard\_55, Colossa\_108, CoolCookie\_75, Cozz\_47, Cracklewink\_99, Crestdrop\_77, Cybele\_76, Dadosky\_59, DanSyl44\_69, DannyDe\_77, DarthP\_63, Dartin\_66, DarwinJr\_53, Dauntless\_75, DelRio\_72, DoubleChamp\_54, Edugator\_56, Ellie\_59, Emalyn\_48, Eponine\_68, Erudite\_75, Faiyaz\_91, Fefferhead\_61, Feyre\_60, Fionnbharth\_66, FountainFog\_76, FreddieHg\_77, GMA7\_69, GTE2\_40, GTE7\_68, Gengar\_57, GiKK\_53, Gilda\_76, Gorpy\_49, GrandSlam\_73, Guillsminger\_58, Hager\_78, Hammy\_63, Hamood\_73, Haunter\_77, HayZem\_81, Heftyboy\_58, Hexbug\_56, Hiddenleaf\_77, Hilltopfarm\_91, Horseradish\_52, Hurricane\_64, InvictusManeo\_55, Isolde\_49, JDawG\_75, JF1\_66, Jamzy\_53, JingleBells\_76, Juliette\_68, Kabloowy\_50, Karate\_75, Kate\_76, Keshu\_66, Kevin1\_59, KiSi\_68, Kors\_62, Krampus\_76, Kratio\_55, Kraw\_66, Krueger\_68, Larva\_58, LastHope\_68, LeBruni\_48, LeMond\_67, Lea83\_64, Lebo14\_65, Leston\_57, LilDirt\_54, LilPharaoh\_52, LordBart\_62, MScarn\_54, Malthus\_67, Mapleville\_47, Margaret\_54, MarkPhew\_66, Marshawn\_63, McMater\_66, Mercedes\_58, MidnightRain\_51, Miryou\_61, MisoSoup\_49, MissDaisy\_63, Mitti\_66, ModicumRichard\_117, Morgana\_124, MortySmith\_74, Mulch\_71, MunkgeeRoachy\_47, Nadeem\_71, NarutoRun\_76, Neptune\_76, Nibb\_66, Niklas\_66, Nina\_48, Nodigi\_56, November\_61, Nyilah\_48, ObLaDi\_116, OhDear\_76, OkiRoe\_58, OmniCritical\_65, Omnicron\_61, Orla\_56, Oscar\_67, OverHedge\_75, Paola\_57, Parada\_71, Patt\_62, Peanam\_66, Pharb\_63, Pharpay\_75, PhelpsODU\_65, Phrank\_67, PhunaPhoke\_76, Pixie\_63, Potty\_75, Poultruss\_75, Psycho\_57, Pupper\_157, Qhanda\_68, Quasar\_49, Rachella\_76, RanchParmCat\_53, Rando14\_59, Raphaella\_49, RedBaron\_51, RedWattleHog\_174, Reptar3000\_63, Richo\_66, Rie18\_76, RikSengupta\_62, Ruthiejr\_67, SCentae\_156, Sakai\_48, SamScheppers\_64, Scarlett\_68, SgtBeansprout\_52, Shadow1\_68, Shaobing\_66, ShedlockHolmes\_65, SilentWarrior\_77, SketchMex\_50, Skog\_217, Slarp\_66, Snakehole\_77, SoSeph\_58, Sparcetus\_62, Sporco\_51, SteamedHams\_49, Stormageddon\_175, Sunflower1121\_69, SweatNTears\_51, Syra333\_67, TClif\_64, TPA4\_81, Taquito\_65, Tedro\_76, Thyatira\_60, Tierra\_67, Tiff81\_46, TinyMiny\_62, Tolls\_50, Tongui\_77, TribbleTrouble\_64, Trogglehumper\_5, Troje\_52, Typha\_89, Typhonmarchy\_48, Unicorn\_65, Validus\_68, VanLee\_109, ViviJ\_56, Vopal\_52,

Waterfoul\_59, WheatThin\_71, Wintermute\_66, Ximenita\_69, Y10\_64, Y2\_64, Yakult\_51, Yarn\_46, YasnayaPolyana\_65, YoungHarleezy\_50, Yummy\_52,

### Summary by start number:

#### Start 56:

- Found in 1 of 332 ( 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 65:

- Found in 3 of 332 ( 0.9% ) of genes in pham
- Manual Annotations of this start: 3 of 296
- Called 100.0% of time when present
- Phage (with cluster) where this start called: CherryTomatoes\_158 (DO), Pupper\_157 (DO), SCentae\_156 (DO),

#### Start 71:

- Found in 33 of 332 ( 9.9% ) of genes in pham
- Manual Annotations of this start: 26 of 296
- Called 93.9% of time when present
- Phage (with cluster) where this start called: Agatha\_49 (CT), AikoCarson\_50 (CT), Amok\_50 (CT), AndPeggy\_46 (CT), Axym\_48 (CT), BillDoor\_49 (CT), Biskit\_52 (CT), Blondies\_53 (CT), Bubble\_47 (CT), Burnsey\_49 (CT), Buttrmlkdreams\_52 (CT), CanesSauce\_48 (CT), CaramelLatte\_48 (CT), ChickenTender\_51 (CT), ChocoMunchkin\_48 (CT), Cozz\_47 (CT), Emalyn\_48 (CT), Horseradish\_52 (CT), MScarn\_54 (CT), MunkgeeRoachy\_47 (CT), Nina\_48 (CT), Quasar\_49 (CT), RedBaron\_51 (CT), SketchMex\_50 (CT), SteamedHams\_49 (CT), SweatNTears\_51 (CT), Tolls\_50 (CT), Troje\_52 (CT), Typhonmarchy\_48 (CT), Yarn\_46 (CT), Yummy\_52 (CT),

#### Start 73:

- Found in 11 of 332 ( 3.3% ) of genes in pham
- No Manual Annotations of this start.
- Called 9.1% of time when present
- Phage (with cluster) where this start called: GTE2\_40 (CT),

#### Start 74:

- Found in 1 of 332 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 296
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Skog\_217 (DO),

#### Start 75:

- Found in 5 of 332 ( 1.5% ) of genes in pham
- Manual Annotations of this start: 3 of 296
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Amore2\_80 (CS1), Austin\_79 (CS1), GMA7\_69 (CS1), GTE7\_68 (CS1), HayZem\_81 (CS1),

#### Start 79:

- Found in 9 of 332 ( 2.7% ) of genes in pham

- Manual Annotations of this start: 8 of 296
- 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 80:

- Found in 92 of 332 ( 27.7% ) of genes in pham
- Manual Annotations of this start: 86 of 296
- Called 98.9% of time when present
- Phage (with cluster) where this start called: ActinUp\_63 (K1), Adephagia\_63 (K1), Adonis\_63 (K1), Ageofdapage\_67 (K1), Anaya\_66 (K1), Angelica\_63 (K1), Anma\_65 (K1), Apocalypse\_66 (K1), Asayake\_63 (K1), Atiba\_64 (K1), BEEEST\_63 (K1), BGIlluvia\_63 (K1), BaghaKamala\_63 (K1), BarrelRoll\_64 (K1), Beezoo\_65 (K1), Bella96\_64 (K1), Belladonna\_63 (K1), Bern\_65 (K1), Blizzard\_63 (K1), Boiiii\_63 (K1), CREW\_63 (K1), CallaLilly\_63 (K1), Capricorn\_63 (K1), CaseJules\_65 (K1), CheetoDust\_63 (K1), Clipper\_67 (K1), CrimD\_65 (K1), Curiosium\_67 (K1), Dalmuri\_63 (K1), DartGoblin\_66 (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), Pisa1\_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 83:

- Found in 1 of 332 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 296
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aminay\_62 (K7),

#### Start 85:

- Found in 75 of 332 ( 22.6% ) of genes in pham
- Manual Annotations of this start: 67 of 296
- Called 98.7% of time when present
- Phage (with cluster) where this start called: Agent47\_57 (K5), AlleyCat\_59 (K5), Amgine\_62 (K6), Amohntion\_63 (K6), Applecrisp\_60 (K6), BananenDer11\_54 (K5), Bryler\_67 (K6), Cain\_67 (K6), Chavito\_66 (K1), Chris\_66 (K1), Collard\_55 (K5), Dadosky\_59 (K5), DarthP\_63 (K6), Dartin\_66 (K1), DoubleChamp\_54 (K5), Edugator\_56 (K5), Ellie\_59 (K6), Fefferhead\_61 (K6), Feyre\_60 (K5), Gengar\_57 (K5), Guillsminger\_58 (K5), Hammy\_63 (K6), Heftyboy\_58 (K5), Hurricane\_64 (K3), InvictusManeo\_55 (K5), Keshu\_66 (K3), Kevin1\_59 (N), KiSi\_68 (K1), Kratio\_55 (K5), Krueger\_68 (K6), Larva\_58 (K5), LastHope\_68 (K1), LeMond\_67 (K1), Lea83\_64 (K3), Leston\_57 (K5), LilDirt\_54 (K5), LilPharaoh\_52 (K1), MacnCheese\_66 (K3), MarkPhew\_66 (K1), Marshawn\_63 (K6), McMater\_66 (K1), Miryou\_61 (K5), Nibb\_66 (K1), Niklas\_66 (K1), November\_61 (K6), OkiRoe\_58 (K5), Omnicron\_61 (K5),



Oscar\_67 (K1), Paola\_57 (K5), Peanam\_66 (K1), Pharb\_63 (K3), PhelpsODU\_65 (K6), Phrank\_67 (K6), Pixie\_63 (K3), Psycho\_57 (K5), Rando14\_59 (K5), Richo\_66 (K1), Scarlett\_68 (K1), SgtBeansprout\_52 (K1), Shadow1\_68 (K6), Shaobing\_66 (K1), ShedlockHolmes\_65 (K3), SoSeph\_58 (K5), Sunflower1121\_69 (K6), Syra333\_67 (K6), TClif\_64 (K6), Thyatira\_60 (K5), Tierra\_67 (K6), TripleTrouble\_64 (K3), Unicorn\_65 (K6), Validus\_68 (K1), ViviJ\_56 (K5), Waterfoul\_59 (K5), Ximenita\_69 (K6),

#### Start 86:

- Found in 25 of 332 ( 7.5% ) of genes in pham
- Manual Annotations of this start: 22 of 296
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bobquesha\_67 (K4), Chancellor\_66 (K4), Cheetobro\_66 (K4), DanSyl44\_69 (K4), Eponine\_68 (K4), Fionnbharth\_66 (K4), JF1\_66 (K4), Juliette\_68 (K4), Kraw\_66 (K4), Lebo14\_65 (K4), Malthus\_67 (K4), MissDaisy\_63 (K4), Mitti\_66 (K4), OmniCritical\_65 (K4), Patt\_62 (K4), Qhanda\_68 (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), YasnayaPolyana\_65 (K4),

#### Start 87:

- Found in 10 of 332 ( 3.0% ) of genes in pham
- Manual Annotations of this start: 7 of 296
- Called 80.0% of time when present
- Phage (with cluster) where this start called: AuntGwenStacy\_89 (Y), Bipper\_99 (Y), Cracklewink\_99 (Y), Faiyaz\_91 (Y), Hilltopfarm\_91 (Y), RedWattleHog\_174 (DX), Stormageddon\_175 (DX), Typha\_89 (Y),

#### Start 90:

- Found in 10 of 332 ( 3.0% ) of genes in pham
- Manual Annotations of this start: 10 of 296
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ayotoya\_72 (DI), Brylie\_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 92:

- Found in 1 of 332 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 296
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Trogglehumper\_5 (singleton),

#### Start 93:

- Found in 31 of 332 ( 9.3% ) of genes in pham
- Manual Annotations of this start: 24 of 296
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AbbyDaisy\_49 (AY), Ajin\_62 (EF), Aleemily\_115 (DZ), Auxilium\_46 (AY), BlueShadow\_48 (AY), Bramble\_62 (EF), Cafasso\_117 (DZ), Colossa\_108 (KA), DarwinJr\_53 (AY), Gorpy\_49 (AY), Isolde\_49 (AY), Kabloowy\_50 (AY), Kors\_62 (EF), LeBruni\_48 (AY), LordBart\_62 (EF), Mapleville\_47 (AY), MidnightRain\_51 (AY), ModicumRichard\_117 (DZ), Morgana\_124 (DZ), Nyilah\_48 (AY), ObLaDi\_116 (DZ), Raphaella\_49 (AY), RikSengupta\_62 (EF), Sakai\_48 (AY), Sparcetus\_62 (EF), Sporco\_51 (AY), Tiff81\_46 (AY), TinyMiny\_62

(EF), VanLee\_109 (KA), Vopal\_52 (AY), YoungHarleezy\_50 (AY),

Start 94:

- Found in 9 of 332 ( 2.7% ) of genes in pham
- Manual Annotations of this start: 1 of 296
- Called 11.1% of time when present
- Phage (with cluster) where this start called: Yakult\_51 (CT),

Start 95:

- Found in 38 of 332 ( 11.4% ) of genes in pham
- Manual Annotations of this start: 1 of 296
- Called 5.3% of time when present
- Phage (with cluster) where this start called: Aesir\_75 (EF), FountainFog\_76 (EF),

Start 99:

- Found in 38 of 332 ( 11.4% ) of genes in pham
- Manual Annotations of this start: 34 of 296
- Called 94.7% of time when present
- Phage (with cluster) where this start called: Anakin\_76 (EF), AnnaSerena\_76 (EF), Annapurna\_77 (EF), Artiphact\_76 (EF), Chivey\_77 (EF), CoolCookie\_75 (EF), Crestdrop\_77 (EF), Cybele\_76 (EF), DannyDe\_77 (EF), Dauntless\_75 (EF), Erudite\_75 (EF), FreddieHg\_77 (EF), Gilda\_76 (EF), Hager\_78 (EF), Haunter\_77 (EF), Hiddenleaf\_77 (EF), JDawG\_75 (EF), JingleBells\_76 (EF), Karate\_75 (EF), Kate\_76 (EF), Krampus\_76 (EF), MortySmith\_74 (EF), NarutoRun\_76 (EF), Neptune\_76 (EF), OhDear\_76 (EF), OverHedge\_75 (EF), Pharpay\_75 (EF), PhunaPhoke\_76 (EF), Potty\_75 (EF), Poultruss\_75 (EF), Rachella\_76 (EF), Rie18\_76 (EF), SilentWarrior\_77 (EF), Snakehole\_77 (EF), Tedro\_76 (EF), Tongui\_77 (EF),

Start 103:

- Found in 1 of 332 ( 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: MisoSoup\_49 (GM),

Start 104:

- Found in 3 of 332 ( 0.9% ) of genes in pham
- Manual Annotations of this start: 1 of 296
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Mercedes\_58 (EA),

### Summary by clusters:

There are 20 clusters represented in this pham: DO, KA, DX, DI, EF, EA, singleton, N, K3, Y, K1, DZ, K6, K5, K4, AY, K7, GM, CS1, CT,

Info for manual annotations of cluster AY:

- Start number 93 was manually annotated 11 times for cluster AY.

Info for manual annotations of cluster CS1:

- Start number 75 was manually annotated 3 times for cluster CS1.

Info for manual annotations of cluster CT:

- Start number 71 was manually annotated 26 times for cluster CT.
- Start number 79 was manually annotated 8 times for cluster CT.
- Start number 94 was manually annotated 1 time for cluster CT.

Info for manual annotations of cluster DI:

- Start number 90 was manually annotated 10 times for cluster DI.

Info for manual annotations of cluster DO:

- Start number 65 was manually annotated 3 times for cluster DO.
- Start number 74 was manually annotated 1 time for cluster DO.

Info for manual annotations of cluster DX:

- Start number 87 was manually annotated 2 times for cluster DX.

Info for manual annotations of cluster DZ:

- Start number 93 was manually annotated 5 times for cluster DZ.

Info for manual annotations of cluster EA:

- Start number 104 was manually annotated 1 time for cluster EA.

Info for manual annotations of cluster EF:

- Start number 93 was manually annotated 7 times for cluster EF.
- Start number 95 was manually annotated 1 time for cluster EF.
- Start number 99 was manually annotated 34 times for cluster EF.

Info for manual annotations of cluster K1:

- Start number 80 was manually annotated 86 times for cluster K1.
- Start number 85 was manually annotated 14 times for cluster K1.

Info for manual annotations of cluster K3:

- Start number 85 was manually annotated 8 times for cluster K3.

Info for manual annotations of cluster K4:

- Start number 86 was manually annotated 22 times for cluster K4.

Info for manual annotations of cluster K5:

- Start number 85 was manually annotated 23 times for cluster K5.

Info for manual annotations of cluster K6:

- Start number 85 was manually annotated 21 times for cluster K6.

Info for manual annotations of cluster K7:

- Start number 83 was manually annotated 1 time for cluster K7.

Info for manual annotations of cluster KA:

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

Info for manual annotations of cluster N:

- Start number 85 was manually annotated 1 time for cluster N.

Info for manual annotations of cluster Y:

- Start number 87 was manually annotated 5 times for cluster Y.

**Gene Information:**

Gene: AbbyDaisy\_49 Start: 31179, Stop: 31364, Start Num: 93

Candidate Starts for AbbyDaisy\_49:

(70, 31122), (Start: 93 @31179 has 24 MA's), (107, 31236), (115, 31257), (119, 31272),

Gene: ActinUp\_63 Start: 42440, Stop: 42655, Start Num: 80

Candidate Starts for ActinUp\_63:

(Start: 80 @42440 has 86 MA's), (111, 42527), (114, 42536),

Gene: Adephagia\_63 Start: 42477, Stop: 42692, Start Num: 80

Candidate Starts for Adephagia\_63:

(Start: 80 @42477 has 86 MA's), (111, 42564), (114, 42573),

Gene: Adonis\_63 Start: 42712, Stop: 42927, Start Num: 80

Candidate Starts for Adonis\_63:

(Start: 80 @42712 has 86 MA's), (111, 42799), (114, 42808),

Gene: Aesir\_75 Start: 52985, Stop: 53188, Start Num: 95

Candidate Starts for Aesir\_75:

(Start: 95 @52985 has 1 MA's), (Start: 99 @53000 has 34 MA's), (115, 53057), (139, 53135), (141, 53153), (143, 53165),

Gene: Agatha\_49 Start: 36030, Stop: 35797, Start Num: 71

Candidate Starts for Agatha\_49:

(Start: 71 @36030 has 26 MA's), (102, 35946), (124, 35886),

Gene: Agent47\_57 Start: 39612, Stop: 39824, Start Num: 85

Candidate Starts for Agent47\_57:

(60, 39537), (63, 39546), (67, 39558), (Start: 85 @39612 has 67 MA's), (97, 39630), (111, 39690), (118, 39714), (119, 39717), (127, 39744), (136, 39771), (144, 39819),

Gene: Ageofdapage\_67 Start: 43868, Stop: 44083, Start Num: 80

Candidate Starts for Ageofdapage\_67:

(Start: 80 @43868 has 86 MA's), (111, 43955), (114, 43964),

Gene: AikoCarson\_50 Start: 36349, Stop: 36098, Start Num: 71

Candidate Starts for AikoCarson\_50:

(Start: 71 @36349 has 26 MA's), (73, 36343), (116, 36220), (128, 36175),

Gene: Ajin\_62 Start: 42356, Stop: 42547, Start Num: 93

Candidate Starts for Ajin\_62:

(91, 42353), (Start: 93 @42356 has 24 MA's), (97, 42365), (119, 42446), (134, 42485),

Gene: Aleemily\_115 Start: 64180, Stop: 63974, Start Num: 93

Candidate Starts for Aleemily\_115:

(64, 64249), (Start: 93 @64180 has 24 MA's), (112, 64108), (118, 64093), (123, 64078), (141, 64000),

Gene: AlleyCat\_59 Start: 39910, Stop: 40122, Start Num: 85

Candidate Starts for AlleyCat\_59:

(Start: 85 @39910 has 67 MA's), (111, 39988), (118, 40012), (119, 40015), (127, 40042), (136, 40069),

Gene: Amgine\_62 Start: 43547, Stop: 43759, Start Num: 85

Candidate Starts for Amgine\_62:

(Start: 85 @43547 has 67 MA's), (111, 43628), (114, 43637),

Gene: Aminay\_62 Start: 41845, Stop: 42069, Start Num: 83

Candidate Starts for Aminay\_62:

(Start: 83 @41845 has 1 MA's), (110, 41926), (113, 41935), (119, 41956), (139, 42025),

Gene: Amohnition\_63 Start: 43082, Stop: 43294, Start Num: 85

Candidate Starts for Amohnition\_63:

(2, 42395), (6, 42482), (8, 42530), (9, 42557), (10, 42581), (13, 42623), (33, 42905), (Start: 85 @43082 has 67 MA's), (111, 43163), (114, 43172), (139, 43247),

Gene: Amok\_50 Start: 36274, Stop: 36023, Start Num: 71

Candidate Starts for Amok\_50:

(Start: 71 @36274 has 26 MA's), (73, 36268), (116, 36145), (128, 36100),

Gene: Amore2\_80 Start: 61514, Stop: 61275, Start Num: 75

Candidate Starts for Amore2\_80:

(29, 61679), (Start: 75 @61514 has 3 MA's), (125, 61355),

Gene: Anakin\_76 Start: 53365, Stop: 53553, Start Num: 99

Candidate Starts for Anakin\_76:

(Start: 95 @53350 has 1 MA's), (Start: 99 @53365 has 34 MA's), (115, 53422), (139, 53500), (141, 53518), (143, 53530),

Gene: Anaya\_66 Start: 43420, Stop: 43638, Start Num: 80

Candidate Starts for Anaya\_66:

(Start: 80 @43420 has 86 MA's), (111, 43507), (114, 43516),

Gene: AndPeggy\_46 Start: 35560, Stop: 35309, Start Num: 71

Candidate Starts for AndPeggy\_46:

(Start: 71 @35560 has 26 MA's), (73, 35554), (116, 35431), (128, 35386),

Gene: Angelica\_63 Start: 42629, Stop: 42844, Start Num: 80

Candidate Starts for Angelica\_63:

(Start: 80 @42629 has 86 MA's), (111, 42716), (114, 42725),

Gene: Anma\_65 Start: 43328, Stop: 43543, Start Num: 80

Candidate Starts for Anma\_65:

(Start: 80 @43328 has 86 MA's), (111, 43415), (114, 43424),

Gene: AnnaSerena\_76 Start: 53399, Stop: 53587, Start Num: 99

Candidate Starts for AnnaSerena\_76:

(Start: 95 @53384 has 1 MA's), (Start: 99 @53399 has 34 MA's), (115, 53456), (139, 53534), (141, 53552), (143, 53564),

Gene: Annapurna\_77 Start: 52999, Stop: 53187, Start Num: 99

Candidate Starts for Annapurna\_77:

(Start: 95 @52984 has 1 MA's), (Start: 99 @52999 has 34 MA's), (115, 53056), (141, 53152), (143, 53164),

Gene: Apocalypse\_66 Start: 43395, Stop: 43610, Start Num: 80

Candidate Starts for Apocalypse\_66:

(Start: 80 @43395 has 86 MA's), (111, 43482), (114, 43491),

Gene: Applecrisp\_60 Start: 42677, Stop: 42889, Start Num: 85

Candidate Starts for Applecrisp\_60:

(Start: 85 @42677 has 67 MA's), (111, 42758), (114, 42767),

Gene: Artiphact\_76 Start: 53389, Stop: 53577, Start Num: 99

Candidate Starts for Artiphact\_76:

(Start: 95 @53374 has 1 MA's), (Start: 99 @53389 has 34 MA's), (115, 53446), (139, 53524), (141, 53542), (143, 53554),

Gene: Asayake\_63 Start: 42792, Stop: 43007, Start Num: 80

Candidate Starts for Asayake\_63:

(Start: 80 @42792 has 86 MA's), (111, 42879), (114, 42888),

Gene: Atiba\_64 Start: 42440, Stop: 42655, Start Num: 80

Candidate Starts for Atiba\_64:

(Start: 80 @42440 has 86 MA's), (111, 42527), (114, 42536),

Gene: AuntGwenStacy\_89 Start: 58871, Stop: 59092, Start Num: 87

Candidate Starts for AuntGwenStacy\_89:

(Start: 87 @58871 has 7 MA's), (100, 58907), (107, 58937),

Gene: Austin\_79 Start: 61512, Stop: 61273, Start Num: 75

Candidate Starts for Austin\_79:

(29, 61677), (Start: 75 @61512 has 3 MA's), (125, 61353),

Gene: Auxilium\_46 Start: 28442, Stop: 28633, Start Num: 93

Candidate Starts for Auxilium\_46:

(Start: 93 @28442 has 24 MA's),

Gene: Axym\_48 Start: 35927, Stop: 35694, Start Num: 71

Candidate Starts for Axym\_48:

(Start: 71 @35927 has 26 MA's), (102, 35843), (124, 35783),

Gene: Ayotoya\_72 Start: 48939, Stop: 49139, Start Num: 90

Candidate Starts for Ayotoya\_72:

(59, 48855), (61, 48861), (82, 48927), (Start: 90 @48939 has 10 MA's),

Gene: BEEST\_63 Start: 42792, Stop: 43007, Start Num: 80

Candidate Starts for BEEST\_63:

(Start: 80 @42792 has 86 MA's), (111, 42879), (114, 42888),

Gene: BGlluviae\_63 Start: 42595, Stop: 42810, Start Num: 80

Candidate Starts for BGlluviae\_63:

(Start: 80 @42595 has 86 MA's), (111, 42682), (114, 42691),

Gene: BaghaKamala\_63 Start: 42253, Stop: 42471, Start Num: 80

Candidate Starts for BaghaKamala\_63:

(55, 42175), (Start: 80 @42253 has 86 MA's), (111, 42340), (114, 42349),

Gene: BananenDer11\_54 Start: 39573, Stop: 39785, Start Num: 85  
Candidate Starts for BananenDer11\_54:  
(60, 39498), (63, 39507), (67, 39519), (Start: 85 @39573 has 67 MA's), (97, 39591), (111, 39651),  
(118, 39675), (119, 39678), (127, 39705), (136, 39732), (144, 39780),

Gene: BarrelRoll\_64 Start: 42877, Stop: 43092, Start Num: 80  
Candidate Starts for BarrelRoll\_64:  
(57, 42799), (Start: 80 @42877 has 86 MA's), (111, 42964), (114, 42973),

Gene: Beezoo\_65 Start: 43389, Stop: 43604, Start Num: 80  
Candidate Starts for Beezoo\_65:  
(Start: 80 @43389 has 86 MA's), (111, 43476), (114, 43485),

Gene: Bella96\_64 Start: 43173, Stop: 43388, Start Num: 80  
Candidate Starts for Bella96\_64:  
(Start: 80 @43173 has 86 MA's), (111, 43260), (114, 43269),

Gene: Belladonna\_63 Start: 42595, Stop: 42810, Start Num: 80  
Candidate Starts for Belladonna\_63:  
(Start: 80 @42595 has 86 MA's), (111, 42682), (114, 42691),

Gene: Bern\_65 Start: 41846, Stop: 42064, Start Num: 80  
Candidate Starts for Bern\_65:  
(Start: 80 @41846 has 86 MA's), (111, 41933), (114, 41942),

Gene: BillDoor\_49 Start: 35229, Stop: 34978, Start Num: 71  
Candidate Starts for BillDoor\_49:  
(38, 35346), (Start: 71 @35229 has 26 MA's), (73, 35223), (Start: 87 @35187 has 7 MA's), (116,  
35100), (128, 35055),

Gene: Bipper\_99 Start: 62157, Stop: 62378, Start Num: 87  
Candidate Starts for Bipper\_99:  
(35, 61980), (45, 62025), (46, 62028), (54, 62067), (72, 62115), (Start: 87 @62157 has 7 MA's), (100,  
62193),

Gene: Biskit\_52 Start: 36207, Stop: 35971, Start Num: 71  
Candidate Starts for Biskit\_52:  
(62, 36225), (Start: 71 @36207 has 26 MA's), (124, 36060), (126, 36048), (127, 36045),

Gene: Blizzard\_63 Start: 42792, Stop: 43007, Start Num: 80  
Candidate Starts for Blizzard\_63:  
(Start: 80 @42792 has 86 MA's), (111, 42879), (114, 42888),

Gene: Blondies\_53 Start: 36524, Stop: 36288, Start Num: 71  
Candidate Starts for Blondies\_53:  
(62, 36542), (Start: 71 @36524 has 26 MA's), (124, 36377), (126, 36365), (127, 36362),

Gene: BlueShadow\_48 Start: 30488, Stop: 30679, Start Num: 93  
Candidate Starts for BlueShadow\_48:  
(22, 30227), (53, 30389), (Start: 93 @30488 has 24 MA's),

Gene: Bobquesha\_67 Start: 40811, Stop: 41029, Start Num: 86

Candidate Starts for Bobquesha\_67:

(40, 40652), (42, 40661), (Start: 86 @40811 has 22 MA's), (122, 40928), (133, 40964), (137, 40979), (139, 40985),

Gene: Boiiii\_63 Start: 42794, Stop: 43009, Start Num: 80

Candidate Starts for Boiiii\_63:

(Start: 80 @42794 has 86 MA's), (111, 42881), (114, 42890),

Gene: Bramble\_62 Start: 42368, Stop: 42559, Start Num: 93

Candidate Starts for Bramble\_62:

(91, 42365), (Start: 93 @42368 has 24 MA's), (97, 42377), (119, 42458), (134, 42497),

Gene: Bryler\_67 Start: 42423, Stop: 42635, Start Num: 85

Candidate Starts for Bryler\_67:

(3, 41757), (4, 41781), (7, 41856), (15, 42009), (33, 42240), (Start: 85 @42423 has 67 MA's), (111, 42504), (114, 42513),

Gene: Brylie\_71 Start: 47955, Stop: 48155, Start Num: 90

Candidate Starts for Brylie\_71:

(59, 47871), (61, 47877), (77, 47931), (82, 47943), (Start: 90 @47955 has 10 MA's),

Gene: Bubble\_47 Start: 35617, Stop: 35384, Start Num: 71

Candidate Starts for Bubble\_47:

(Start: 71 @35617 has 26 MA's), (102, 35533), (124, 35473),

Gene: Burnsey\_49 Start: 36021, Stop: 35788, Start Num: 71

Candidate Starts for Burnsey\_49:

(Start: 71 @36021 has 26 MA's), (102, 35937), (124, 35877),

Gene: Button\_51 Start: 36058, Stop: 35855, Start Num: 79

Candidate Starts for Button\_51:

(Start: 79 @36058 has 8 MA's), (88, 36046), (Start: 94 @36037 has 1 MA's), (96, 36031), (108, 35980), (120, 35956),

Gene: Buttrmlkdreams\_52 Start: 36654, Stop: 36418, Start Num: 71

Candidate Starts for Buttrmlkdreams\_52:

(62, 36672), (Start: 71 @36654 has 26 MA's), (124, 36507), (126, 36495), (127, 36492),

Gene: CREW\_63 Start: 42595, Stop: 42810, Start Num: 80

Candidate Starts for CREW\_63:

(Start: 80 @42595 has 86 MA's), (111, 42682), (114, 42691),

Gene: Cafasso\_117 Start: 64785, Stop: 64579, Start Num: 93

Candidate Starts for Cafasso\_117:

(Start: 93 @64785 has 24 MA's), (112, 64713), (118, 64698), (123, 64683),

Gene: Cain\_67 Start: 42411, Stop: 42623, Start Num: 85

Candidate Starts for Cain\_67:

(3, 41745), (4, 41769), (7, 41844), (15, 41997), (33, 42228), (Start: 85 @42411 has 67 MA's), (111, 42492), (114, 42501),

Gene: CallaLilly\_63 Start: 42518, Stop: 42733, Start Num: 80

Candidate Starts for CallaLilly\_63:



(Start: 80 @42518 has 86 MA's), (111, 42605), (114, 42614),

Gene: CanesSauce\_48 Start: 35730, Stop: 35479, Start Num: 71

Candidate Starts for CanesSauce\_48:

(Start: 71 @35730 has 26 MA's), (73, 35724), (116, 35601), (128, 35556),

Gene: Capricorn\_63 Start: 42595, Stop: 42810, Start Num: 80

Candidate Starts for Capricorn\_63:

(Start: 80 @42595 has 86 MA's), (111, 42682), (114, 42691),

Gene: CaramellLatte\_48 Start: 35730, Stop: 35479, Start Num: 71

Candidate Starts for CaramellLatte\_48:

(Start: 71 @35730 has 26 MA's), (73, 35724), (116, 35601), (128, 35556),

Gene: CaseJules\_65 Start: 42792, Stop: 43007, Start Num: 80

Candidate Starts for CaseJules\_65:

(Start: 80 @42792 has 86 MA's), (111, 42879), (114, 42888),

Gene: Chancellor\_66 Start: 41921, Stop: 42139, Start Num: 86

Candidate Starts for Chancellor\_66:

(40, 41762), (42, 41771), (Start: 86 @41921 has 22 MA's), (122, 42038), (133, 42074), (137, 42089),

Gene: Chavito\_66 Start: 43632, Stop: 43841, Start Num: 85

Candidate Starts for Chavito\_66:

(Start: 85 @43632 has 67 MA's), (111, 43713), (114, 43722), (139, 43797),

Gene: CheetoDust\_63 Start: 42300, Stop: 42518, Start Num: 80

Candidate Starts for CheetoDust\_63:

(Start: 80 @42300 has 86 MA's), (111, 42387), (114, 42396),

Gene: Cheetobro\_66 Start: 41918, Stop: 42136, Start Num: 86

Candidate Starts for Cheetobro\_66:

(40, 41759), (42, 41768), (Start: 86 @41918 has 22 MA's), (122, 42035), (133, 42071), (137, 42086),

Gene: CherryTomatoes\_158 Start: 111644, Stop: 111907, Start Num: 65

Candidate Starts for CherryTomatoes\_158:

(52, 111599), (64, 111641), (Start: 65 @111644 has 3 MA's), (119, 111794), (128, 111830), (133, 111842),

Gene: ChickenTender\_51 Start: 35574, Stop: 35341, Start Num: 71

Candidate Starts for ChickenTender\_51:

(19, 35829), (34, 35706), (48, 35649), (Start: 71 @35574 has 26 MA's), (98, 35514), (102, 35490), (126, 35418),

Gene: Chivey\_77 Start: 52802, Stop: 52990, Start Num: 99

Candidate Starts for Chivey\_77:

(Start: 95 @52787 has 1 MA's), (Start: 99 @52802 has 34 MA's), (115, 52859), (139, 52937), (141, 52955), (143, 52967),

Gene: ChocoMunchkin\_48 Start: 35730, Stop: 35479, Start Num: 71

Candidate Starts for ChocoMunchkin\_48:

(Start: 71 @35730 has 26 MA's), (73, 35724), (116, 35601), (128, 35556),

Gene: Chop\_73 Start: 49004, Stop: 49204, Start Num: 90  
Candidate Starts for Chop\_73:  
(59, 48920), (61, 48926), (82, 48992), (Start: 90 @49004 has 10 MA's),

Gene: Chris\_66 Start: 43655, Stop: 43864, Start Num: 85  
Candidate Starts for Chris\_66:  
(12, 43181), (Start: 85 @43655 has 67 MA's), (106, 43718), (111, 43736), (114, 43745), (121, 43769),

Gene: Clipper\_67 Start: 43491, Stop: 43709, Start Num: 80  
Candidate Starts for Clipper\_67:  
(Start: 80 @43491 has 86 MA's), (111, 43578), (114, 43587),

Gene: Collard\_55 Start: 39573, Stop: 39785, Start Num: 85  
Candidate Starts for Collard\_55:  
(60, 39498), (63, 39507), (67, 39519), (Start: 85 @39573 has 67 MA's), (97, 39591), (111, 39651),  
(118, 39675), (119, 39678), (127, 39705), (136, 39732), (144, 39780),

Gene: Colossa\_108 Start: 57696, Stop: 57887, Start Num: 93  
Candidate Starts for Colossa\_108:  
(Start: 93 @57696 has 24 MA's), (141, 57861),

Gene: CoolCookie\_75 Start: 53498, Stop: 53686, Start Num: 99  
Candidate Starts for CoolCookie\_75:  
(Start: 95 @53483 has 1 MA's), (Start: 99 @53498 has 34 MA's), (115, 53555), (139, 53633), (141,  
53651), (143, 53663),

Gene: Cozz\_47 Start: 35618, Stop: 35385, Start Num: 71  
Candidate Starts for Cozz\_47:  
(Start: 71 @35618 has 26 MA's), (102, 35534), (124, 35474),

Gene: Cracklewink\_99 Start: 61392, Stop: 61613, Start Num: 87  
Candidate Starts for Cracklewink\_99:  
(35, 61215), (45, 61260), (46, 61263), (54, 61302), (72, 61350), (Start: 87 @61392 has 7 MA's), (Start:  
95 @61404 has 1 MA's), (100, 61428),

Gene: Crestdrop\_77 Start: 53319, Stop: 53507, Start Num: 99  
Candidate Starts for Crestdrop\_77:  
(Start: 99 @53319 has 34 MA's), (115, 53376), (139, 53454), (141, 53472), (143, 53484),

Gene: CrimD\_65 Start: 43416, Stop: 43631, Start Num: 80  
Candidate Starts for CrimD\_65:  
(57, 43338), (Start: 80 @43416 has 86 MA's), (111, 43503), (114, 43512),

Gene: Curiosium\_67 Start: 42105, Stop: 42323, Start Num: 80  
Candidate Starts for Curiosium\_67:  
(Start: 80 @42105 has 86 MA's), (89, 42117), (111, 42192), (114, 42201),

Gene: Cybele\_76 Start: 53395, Stop: 53583, Start Num: 99  
Candidate Starts for Cybele\_76:  
(Start: 95 @53380 has 1 MA's), (Start: 99 @53395 has 34 MA's), (115, 53452), (139, 53530), (141,  
53548), (143, 53560),

Gene: Dadosky\_59 Start: 39912, Stop: 40124, Start Num: 85

Candidate Starts for Dadosky\_59:

(Start: 85 @39912 has 67 MA's), (111, 39990), (118, 40014), (119, 40017), (127, 40044), (136, 40071),

Gene: Dalmuri\_63 Start: 42595, Stop: 42810, Start Num: 80

Candidate Starts for Dalmuri\_63:

(Start: 80 @42595 has 86 MA's), (111, 42682), (114, 42691),

Gene: DanSyl44\_69 Start: 43112, Stop: 43330, Start Num: 86

Candidate Starts for DanSyl44\_69:

(40, 42953), (42, 42962), (Start: 86 @43112 has 22 MA's), (122, 43229), (133, 43265), (137, 43280),

Gene: DannyDe\_77 Start: 52804, Stop: 52992, Start Num: 99

Candidate Starts for DannyDe\_77:

(Start: 95 @52789 has 1 MA's), (Start: 99 @52804 has 34 MA's), (115, 52861), (139, 52939), (141, 52957), (143, 52969),

Gene: DartGoblin\_66 Start: 43145, Stop: 43360, Start Num: 80

Candidate Starts for DartGoblin\_66:

(Start: 80 @43145 has 86 MA's), (111, 43232), (114, 43241),

Gene: DarthP\_63 Start: 42936, Stop: 43148, Start Num: 85

Candidate Starts for DarthP\_63:

(2, 42249), (6, 42336), (8, 42384), (9, 42411), (10, 42435), (13, 42477), (33, 42759), (Start: 85 @42936 has 67 MA's), (111, 43017), (114, 43026), (139, 43101),

Gene: Dartin\_66 Start: 43084, Stop: 43293, Start Num: 85

Candidate Starts for Dartin\_66:

(31, 42904), (Start: 85 @43084 has 67 MA's), (111, 43165), (114, 43174),

Gene: DarwinJr\_53 Start: 31842, Stop: 32027, Start Num: 93

Candidate Starts for DarwinJr\_53:

(30, 31647), (46, 31707), (49, 31716), (69, 31785), (Start: 93 @31842 has 24 MA's), (107, 31899), (119, 31935),

Gene: Dauntless\_75 Start: 53031, Stop: 53219, Start Num: 99

Candidate Starts for Dauntless\_75:

(Start: 95 @53016 has 1 MA's), (Start: 99 @53031 has 34 MA's), (115, 53088), (139, 53166), (141, 53184), (143, 53196),

Gene: Deby\_64 Start: 43078, Stop: 43293, Start Num: 80

Candidate Starts for Deby\_64:

(Start: 80 @43078 has 86 MA's), (111, 43165), (114, 43174),

Gene: DelRio\_72 Start: 49046, Stop: 49246, Start Num: 90

Candidate Starts for DelRio\_72:

(59, 48962), (61, 48968), (82, 49034), (Start: 90 @49046 has 10 MA's),

Gene: Devera\_71 Start: 44431, Stop: 44646, Start Num: 80

Candidate Starts for Devera\_71:

(57, 44353), (Start: 80 @44431 has 86 MA's), (111, 44518), (114, 44527),

Gene: Dole\_69 Start: 44434, Stop: 44649, Start Num: 80

Candidate Starts for Dole\_69:

(57, 44356), (Start: 80 @44434 has 86 MA's), (111, 44521), (114, 44530),

Gene: DoubleChamp\_54 Start: 39573, Stop: 39785, Start Num: 85

Candidate Starts for DoubleChamp\_54:

(60, 39498), (63, 39507), (67, 39519), (Start: 85 @39573 has 67 MA's), (97, 39591), (111, 39651), (118, 39675), (119, 39678), (127, 39705), (136, 39732), (144, 39780),

Gene: DrHayes\_64 Start: 43328, Stop: 43543, Start Num: 80

Candidate Starts for DrHayes\_64:

(Start: 80 @43328 has 86 MA's), (111, 43415), (114, 43424),

Gene: Durfee\_63 Start: 42792, Stop: 43007, Start Num: 80

Candidate Starts for Durfee\_63:

(Start: 80 @42792 has 86 MA's), (111, 42879), (114, 42888),

Gene: Edugator\_56 Start: 41333, Stop: 41545, Start Num: 85

Candidate Starts for Edugator\_56:

(Start: 85 @41333 has 67 MA's), (97, 41351), (111, 41411), (118, 41435), (119, 41438), (127, 41465), (136, 41492), (144, 41540),

Gene: Efra2\_69 Start: 43158, Stop: 43376, Start Num: 80

Candidate Starts for Efra2\_69:

(55, 43080), (Start: 80 @43158 has 86 MA's), (111, 43245), (114, 43254),

Gene: Ellie\_59 Start: 42407, Stop: 42619, Start Num: 85

Candidate Starts for Ellie\_59:

(Start: 85 @42407 has 67 MA's), (111, 42488), (114, 42497),

Gene: Emalyn\_48 Start: 35066, Stop: 34815, Start Num: 71

Candidate Starts for Emalyn\_48:

(Start: 71 @35066 has 26 MA's), (73, 35060), (116, 34937), (128, 34892),

Gene: Emerson\_65 Start: 42909, Stop: 43127, Start Num: 80

Candidate Starts for Emerson\_65:

(Start: 80 @42909 has 86 MA's), (111, 42996), (114, 43005),

Gene: Eponine\_68 Start: 42764, Stop: 42982, Start Num: 86

Candidate Starts for Eponine\_68:

(40, 42605), (42, 42614), (Start: 86 @42764 has 22 MA's), (122, 42881), (133, 42917), (137, 42932),

Gene: Erudite\_75 Start: 53031, Stop: 53219, Start Num: 99

Candidate Starts for Erudite\_75:

(Start: 95 @53016 has 1 MA's), (Start: 99 @53031 has 34 MA's), (115, 53088), (139, 53166), (141, 53184), (143, 53196),

Gene: Faiyaz\_91 Start: 58877, Stop: 59098, Start Num: 87

Candidate Starts for Faiyaz\_91:

(Start: 87 @58877 has 7 MA's), (100, 58913), (107, 58943),

Gene: Fefferhead\_61 Start: 42316, Stop: 42528, Start Num: 85

Candidate Starts for Fefferhead\_61:

(Start: 85 @42316 has 67 MA's), (111, 42397), (114, 42406),

Gene: Feyre\_60 Start: 43292, Stop: 43504, Start Num: 85  
Candidate Starts for Feyre\_60:  
(Start: 85 @43292 has 67 MA's), (111, 43370), (118, 43394), (119, 43397), (131, 43430), (136, 43451),  
(141, 43478),

Gene: Fionnbharth\_66 Start: 42162, Stop: 42380, Start Num: 86  
Candidate Starts for Fionnbharth\_66:  
(40, 42003), (42, 42012), (Start: 86 @42162 has 22 MA's), (122, 42279), (133, 42315), (137, 42330),

Gene: FountainFog\_76 Start: 52859, Stop: 53062, Start Num: 95  
Candidate Starts for FountainFog\_76:  
(Start: 95 @52859 has 1 MA's), (Start: 99 @52874 has 34 MA's), (139, 53009), (141, 53027), (143, 53039),

Gene: FreddieHg\_77 Start: 52819, Stop: 53007, Start Num: 99  
Candidate Starts for FreddieHg\_77:  
(Start: 95 @52804 has 1 MA's), (Start: 99 @52819 has 34 MA's), (115, 52876), (139, 52954), (141, 52972), (143, 52984),

Gene: GMA7\_69 Start: 55728, Stop: 55489, Start Num: 75  
Candidate Starts for GMA7\_69:  
(29, 55893), (Start: 75 @55728 has 3 MA's), (125, 55569),

Gene: GTE2\_40 Start: 35662, Stop: 35417, Start Num: 73  
Candidate Starts for GTE2\_40:  
(38, 35785), (Start: 71 @35668 has 26 MA's), (73, 35662), (Start: 87 @35626 has 7 MA's), (102, 35575), (116, 35539), (128, 35494), (138, 35461),

Gene: GTE7\_68 Start: 55759, Stop: 55520, Start Num: 75  
Candidate Starts for GTE7\_68:  
(29, 55924), (Start: 75 @55759 has 3 MA's), (125, 55600),

Gene: Ganymede\_64 Start: 42817, Stop: 43032, Start Num: 80  
Candidate Starts for Ganymede\_64:  
(Start: 80 @42817 has 86 MA's), (111, 42904), (114, 42913),

Gene: Gengar\_57 Start: 41311, Stop: 41523, Start Num: 85  
Candidate Starts for Gengar\_57:  
(Start: 85 @41311 has 67 MA's), (111, 41389), (118, 41413), (119, 41416), (127, 41443), (136, 41470),  
(141, 41497),

Gene: Geraldini\_66 Start: 43474, Stop: 43689, Start Num: 80  
Candidate Starts for Geraldini\_66:  
(Start: 80 @43474 has 86 MA's), (111, 43561), (114, 43570),

Gene: GiKK\_53 Start: 36382, Stop: 36179, Start Num: 79  
Candidate Starts for GiKK\_53:  
(Start: 79 @36382 has 8 MA's), (88, 36370), (Start: 94 @36361 has 1 MA's), (96, 36355), (108, 36304),  
(120, 36280),

Gene: Gilda\_76 Start: 53387, Stop: 53575, Start Num: 99  
Candidate Starts for Gilda\_76:

(Start: 95 @53372 has 1 MA's), (Start: 99 @53387 has 34 MA's), (115, 53444), (139, 53522), (141, 53540), (143, 53552),

Gene: Gorpy\_49 Start: 31480, Stop: 31674, Start Num: 93  
Candidate Starts for Gorpy\_49:  
(Start: 93 @31480 has 24 MA's), (111, 31549), (139, 31627),

Gene: GrandSlam\_73 Start: 49004, Stop: 49204, Start Num: 90  
Candidate Starts for GrandSlam\_73:  
(59, 48920), (61, 48926), (82, 48992), (Start: 90 @49004 has 10 MA's),

Gene: Guanica15\_68 Start: 42899, Stop: 43117, Start Num: 80  
Candidate Starts for Guanica15\_68:  
(55, 42821), (Start: 80 @42899 has 86 MA's), (111, 42986), (114, 42995),

Gene: Guillsminger\_58 Start: 41282, Stop: 41494, Start Num: 85  
Candidate Starts for Guillsminger\_58:  
(Start: 85 @41282 has 67 MA's), (111, 41360), (118, 41384), (119, 41387), (131, 41420), (136, 41441), (141, 41468),

Gene: Hager\_78 Start: 52853, Stop: 53041, Start Num: 99  
Candidate Starts for Hager\_78:  
(Start: 95 @52838 has 1 MA's), (Start: 99 @52853 has 34 MA's), (139, 52988), (141, 53006), (143, 53018),

Gene: Hammy\_63 Start: 42924, Stop: 43136, Start Num: 85  
Candidate Starts for Hammy\_63:  
(33, 42747), (Start: 85 @42924 has 67 MA's), (111, 43005), (114, 43014), (139, 43089),

Gene: Hamood\_73 Start: 49004, Stop: 49204, Start Num: 90  
Candidate Starts for Hamood\_73:  
(59, 48920), (61, 48926), (82, 48992), (Start: 90 @49004 has 10 MA's),

Gene: Haunter\_77 Start: 52808, Stop: 52996, Start Num: 99  
Candidate Starts for Haunter\_77:  
(Start: 95 @52793 has 1 MA's), (Start: 99 @52808 has 34 MA's), (115, 52865), (139, 52943), (141, 52961), (143, 52973),

Gene: HayZem\_81 Start: 61512, Stop: 61273, Start Num: 75  
Candidate Starts for HayZem\_81:  
(29, 61677), (Start: 75 @61512 has 3 MA's), (125, 61353),

Gene: HedwigODU\_63 Start: 42440, Stop: 42655, Start Num: 80  
Candidate Starts for HedwigODU\_63:  
(Start: 80 @42440 has 86 MA's), (111, 42527), (114, 42536),

Gene: Heftyboy\_58 Start: 41654, Stop: 41866, Start Num: 85  
Candidate Starts for Heftyboy\_58:  
(Start: 85 @41654 has 67 MA's), (111, 41732), (118, 41756), (119, 41759), (131, 41792), (136, 41813), (141, 41840),

Gene: Hexbug\_56 Start: 38441, Stop: 38238, Start Num: 79  
Candidate Starts for Hexbug\_56:

(Start: 79 @38441 has 8 MA's), (Start: 94 @38420 has 1 MA's), (120, 38339), (125, 38318), (129, 38309), (138, 38282),

Gene: Hiddenleaf\_77 Start: 52802, Stop: 52990, Start Num: 99

Candidate Starts for Hiddenleaf\_77:

(Start: 95 @52787 has 1 MA's), (Start: 99 @52802 has 34 MA's), (115, 52859), (139, 52937), (141, 52955), (143, 52967),

Gene: Hilltopfarm\_91 Start: 59257, Stop: 59478, Start Num: 87

Candidate Starts for Hilltopfarm\_91:

(Start: 87 @59257 has 7 MA's), (100, 59293), (107, 59323),

Gene: Homura\_63 Start: 42595, Stop: 42810, Start Num: 80

Candidate Starts for Homura\_63:

(Start: 80 @42595 has 86 MA's), (111, 42682), (114, 42691),

Gene: Horseradish\_52 Start: 36140, Stop: 35904, Start Num: 71

Candidate Starts for Horseradish\_52:

(62, 36158), (Start: 71 @36140 has 26 MA's), (124, 35993), (126, 35981), (127, 35978),

Gene: Hurricane\_64 Start: 42910, Stop: 43122, Start Num: 85

Candidate Starts for Hurricane\_64:

(Start: 85 @42910 has 67 MA's), (114, 43000), (139, 43075),

Gene: Hyperbowlee\_63 Start: 42792, Stop: 43007, Start Num: 80

Candidate Starts for Hyperbowlee\_63:

(Start: 80 @42792 has 86 MA's), (111, 42879), (114, 42888),

Gene: Illumine\_69 Start: 44433, Stop: 44648, Start Num: 80

Candidate Starts for Illumine\_69:

(57, 44355), (Start: 80 @44433 has 86 MA's), (111, 44520), (114, 44529),

Gene: Inky\_63 Start: 42595, Stop: 42810, Start Num: 80

Candidate Starts for Inky\_63:

(Start: 80 @42595 has 86 MA's), (111, 42682), (114, 42691),

Gene: InvictusManeo\_55 Start: 39616, Stop: 39828, Start Num: 85

Candidate Starts for InvictusManeo\_55:

(60, 39541), (63, 39550), (67, 39562), (Start: 85 @39616 has 67 MA's), (97, 39634), (111, 39694), (118, 39718), (119, 39721), (127, 39748), (136, 39775), (144, 39823),

Gene: Isolde\_49 Start: 30525, Stop: 30716, Start Num: 93

Candidate Starts for Isolde\_49:

(Start: 93 @30525 has 24 MA's),

Gene: JAWS\_64 Start: 42868, Stop: 43086, Start Num: 80

Candidate Starts for JAWS\_64:

(55, 42790), (Start: 80 @42868 has 86 MA's), (111, 42955), (114, 42964),

Gene: JDawG\_75 Start: 52995, Stop: 53183, Start Num: 99

Candidate Starts for JDawG\_75:

(Start: 95 @52980 has 1 MA's), (Start: 99 @52995 has 34 MA's), (115, 53052), (139, 53130), (141, 53148), (143, 53160),

Gene: JF1\_66 Start: 42079, Stop: 42297, Start Num: 86

Candidate Starts for JF1\_66:

(40, 41920), (42, 41929), (Start: 86 @42079 has 22 MA's), (122, 42196), (133, 42232), (137, 42247),

Gene: Jamzy\_53 Start: 36362, Stop: 36159, Start Num: 79

Candidate Starts for Jamzy\_53:

(Start: 79 @36362 has 8 MA's), (88, 36350), (Start: 94 @36341 has 1 MA's), (96, 36335), (108, 36284), (120, 36260),

Gene: Jarvi\_63 Start: 42595, Stop: 42810, Start Num: 80

Candidate Starts for Jarvi\_63:

(Start: 80 @42595 has 86 MA's), (111, 42682), (114, 42691),

Gene: Jayhawk\_65 Start: 42937, Stop: 43152, Start Num: 80

Candidate Starts for Jayhawk\_65:

(Start: 80 @42937 has 86 MA's), (111, 43024), (114, 43033),

Gene: Jeckyll\_63 Start: 42595, Stop: 42810, Start Num: 80

Candidate Starts for Jeckyll\_63:

(Start: 80 @42595 has 86 MA's), (111, 42682), (114, 42691),

Gene: JingleBells\_76 Start: 52907, Stop: 53095, Start Num: 99

Candidate Starts for JingleBells\_76:

(Start: 95 @52892 has 1 MA's), (Start: 99 @52907 has 34 MA's), (115, 52964), (139, 53042), (141, 53060), (143, 53072),

Gene: Joy99\_63 Start: 42524, Stop: 42739, Start Num: 80

Candidate Starts for Joy99\_63:

(Start: 80 @42524 has 86 MA's), (111, 42611), (114, 42620),

Gene: Juliette\_68 Start: 42226, Stop: 42444, Start Num: 86

Candidate Starts for Juliette\_68:

(40, 42067), (42, 42076), (Start: 86 @42226 has 22 MA's), (122, 42343), (133, 42379), (137, 42394),

Gene: Kabloowy\_50 Start: 31539, Stop: 31730, Start Num: 93

Candidate Starts for Kabloowy\_50:

(49, 31413), (68, 31482), (Start: 93 @31539 has 24 MA's),

Gene: Karate\_75 Start: 53099, Stop: 53287, Start Num: 99

Candidate Starts for Karate\_75:

(Start: 95 @53084 has 1 MA's), (Start: 99 @53099 has 34 MA's), (115, 53156), (141, 53252), (143, 53264),

Gene: Kate\_76 Start: 53310, Stop: 53498, Start Num: 99

Candidate Starts for Kate\_76:

(Start: 95 @53295 has 1 MA's), (Start: 99 @53310 has 34 MA's), (115, 53367), (139, 53445), (141, 53463), (143, 53475),

Gene: Keshu\_66 Start: 43008, Stop: 43220, Start Num: 85

Candidate Starts for Keshu\_66:

(33, 42825), (Start: 85 @43008 has 67 MA's), (114, 43098), (139, 43173),



Gene: Kevin1\_59 Start: 36836, Stop: 37027, Start Num: 85

Candidate Starts for Kevin1\_59:

(Start: 85 @36836 has 67 MA's), (130, 36968),

Gene: KiSi\_68 Start: 43636, Stop: 43845, Start Num: 85

Candidate Starts for KiSi\_68:

(Start: 85 @43636 has 67 MA's), (97, 43657), (106, 43699), (111, 43717), (114, 43726), (121, 43750),

Gene: Kors\_62 Start: 42441, Stop: 42632, Start Num: 93

Candidate Starts for Kors\_62:

(91, 42438), (Start: 93 @42441 has 24 MA's), (97, 42450), (119, 42531), (134, 42570),

Gene: Krampus\_76 Start: 53400, Stop: 53588, Start Num: 99

Candidate Starts for Krampus\_76:

(Start: 95 @53385 has 1 MA's), (Start: 99 @53400 has 34 MA's), (115, 53457), (139, 53535), (141, 53553), (143, 53565),

Gene: Kratio\_55 Start: 39352, Stop: 39564, Start Num: 85

Candidate Starts for Kratio\_55:

(11, 38872), (17, 38959), (18, 39010), (24, 39118), (25, 39124), (60, 39277), (63, 39286), (67, 39298), (Start: 85 @39352 has 67 MA's), (97, 39370), (118, 39454), (119, 39457), (127, 39484), (136, 39511), (144, 39559),

Gene: Kraw\_66 Start: 41914, Stop: 42132, Start Num: 86

Candidate Starts for Kraw\_66:

(40, 41755), (42, 41764), (Start: 86 @41914 has 22 MA's), (122, 42031), (133, 42067), (137, 42082),

Gene: Krueger\_68 Start: 42699, Stop: 42911, Start Num: 85

Candidate Starts for Krueger\_68:

(33, 42516), (Start: 85 @42699 has 67 MA's), (111, 42780), (114, 42789), (140, 42873),

Gene: Larva\_58 Start: 40784, Stop: 40996, Start Num: 85

Candidate Starts for Larva\_58:

(Start: 85 @40784 has 67 MA's), (111, 40862), (118, 40886), (119, 40889), (127, 40916), (136, 40943),

Gene: LastHope\_68 Start: 42025, Stop: 42237, Start Num: 85

Candidate Starts for LastHope\_68:

(Start: 85 @42025 has 67 MA's), (111, 42106), (114, 42115),

Gene: LaterM\_64 Start: 43287, Stop: 43502, Start Num: 80

Candidate Starts for LaterM\_64:

(Start: 80 @43287 has 86 MA's), (111, 43374), (114, 43383),

Gene: LeBruni\_48 Start: 29822, Stop: 30013, Start Num: 93

Candidate Starts for LeBruni\_48:

(Start: 93 @29822 has 24 MA's),

Gene: LeMond\_67 Start: 43270, Stop: 43479, Start Num: 85

Candidate Starts for LeMond\_67:

(Start: 85 @43270 has 67 MA's), (97, 43291), (106, 43333), (111, 43351), (114, 43360), (121, 43384),

Gene: Lea83\_64 Start: 42945, Stop: 43157, Start Num: 85

Candidate Starts for Lea83\_64:

(Start: 85 @42945 has 67 MA's), (114, 43035), (139, 43110),

Gene: Lebo14\_65 Start: 42247, Stop: 42465, Start Num: 86

Candidate Starts for Lebo14\_65:

(40, 42088), (42, 42097), (Start: 86 @42247 has 22 MA's), (122, 42364), (133, 42400), (137, 42415),

Gene: Leston\_57 Start: 41411, Stop: 41623, Start Num: 85

Candidate Starts for Leston\_57:

(Start: 85 @41411 has 67 MA's), (111, 41489), (118, 41513), (119, 41516), (131, 41549), (136, 41570), (141, 41597),

Gene: LilDirt\_54 Start: 39374, Stop: 39586, Start Num: 85

Candidate Starts for LilDirt\_54:

(60, 39299), (63, 39308), (67, 39320), (Start: 85 @39374 has 67 MA's), (97, 39392), (111, 39452), (118, 39476), (119, 39479), (127, 39506), (136, 39533), (144, 39581),

Gene: LilPharaoh\_52 Start: 39482, Stop: 39691, Start Num: 85

Candidate Starts for LilPharaoh\_52:

(Start: 85 @39482 has 67 MA's), (111, 39563), (114, 39572),

Gene: LindNT\_63 Start: 43082, Stop: 43297, Start Num: 80

Candidate Starts for LindNT\_63:

(57, 43004), (Start: 80 @43082 has 86 MA's), (111, 43169), (114, 43178),

Gene: Llorens\_63 Start: 42595, Stop: 42810, Start Num: 80

Candidate Starts for Llorens\_63:

(Start: 80 @42595 has 86 MA's), (111, 42682), (114, 42691),

Gene: LordBart\_62 Start: 42338, Stop: 42529, Start Num: 93

Candidate Starts for LordBart\_62:

(91, 42335), (Start: 93 @42338 has 24 MA's), (97, 42347), (119, 42428), (134, 42467),

Gene: Lunahalos\_63 Start: 42595, Stop: 42810, Start Num: 80

Candidate Starts for Lunahalos\_63:

(Start: 80 @42595 has 86 MA's), (111, 42682), (114, 42691),

Gene: MScarn\_54 Start: 36322, Stop: 36086, Start Num: 71

Candidate Starts for MScarn\_54:

(62, 36340), (Start: 71 @36322 has 26 MA's), (124, 36175), (126, 36163), (127, 36160),

Gene: MacKat\_59 Start: 38375, Stop: 38593, Start Num: 80

Candidate Starts for MacKat\_59:

(Start: 80 @38375 has 86 MA's), (111, 38462), (114, 38471),

Gene: MacnCheese\_66 Start: 43527, Stop: 43739, Start Num: 85

Candidate Starts for MacnCheese\_66:

(Start: 80 @43521 has 86 MA's), (Start: 85 @43527 has 67 MA's), (114, 43617), (134, 43677), (139, 43692),

Gene: Malthus\_67 Start: 41914, Stop: 42132, Start Num: 86

Candidate Starts for Malthus\_67:

(40, 41755), (42, 41764), (Start: 86 @41914 has 22 MA's), (122, 42031), (133, 42067), (137, 42082),

Gene: Mapleville\_47 Start: 30349, Stop: 30540, Start Num: 93  
Candidate Starts for Mapleville\_47:  
(Start: 93 @30349 has 24 MA's),

Gene: Margaret\_54 Start: 37114, Stop: 36911, Start Num: 79  
Candidate Starts for Margaret\_54:  
(Start: 79 @37114 has 8 MA's), (88, 37102), (Start: 94 @37093 has 1 MA's), (96, 37087), (108, 37036),  
(120, 37012),

Gene: MarkPheW\_66 Start: 42770, Stop: 42982, Start Num: 85  
Candidate Starts for MarkPheW\_66:  
(Start: 85 @42770 has 67 MA's), (106, 42833), (111, 42851), (114, 42860), (121, 42884),

Gene: Marshawn\_63 Start: 43120, Stop: 43332, Start Num: 85  
Candidate Starts for Marshawn\_63:  
(Start: 85 @43120 has 67 MA's), (111, 43201),

Gene: McMater\_66 Start: 43084, Stop: 43293, Start Num: 85  
Candidate Starts for McMater\_66:  
(31, 42904), (Start: 85 @43084 has 67 MA's), (111, 43165), (114, 43174),

Gene: MeaningOfLife\_64 Start: 43347, Stop: 43562, Start Num: 80  
Candidate Starts for MeaningOfLife\_64:  
(Start: 80 @43347 has 86 MA's), (111, 43434), (114, 43443),

Gene: Megsy\_66 Start: 43003, Stop: 43218, Start Num: 80  
Candidate Starts for Megsy\_66:  
(Start: 80 @43003 has 86 MA's), (111, 43090), (114, 43099),

Gene: Mercedes\_58 Start: 39826, Stop: 40002, Start Num: 104  
Candidate Starts for Mercedes\_58:  
(Start: 85 @39766 has 67 MA's), (102, 39823), (Start: 104 @39826 has 1 MA's), (130, 39919),

Gene: MidnightRain\_51 Start: 31618, Stop: 31809, Start Num: 93  
Candidate Starts for MidnightRain\_51:  
(66, 31558), (Start: 93 @31618 has 24 MA's), (136, 31756),

Gene: Miryou\_61 Start: 44008, Stop: 44220, Start Num: 85  
Candidate Starts for Miryou\_61:  
(Start: 85 @44008 has 67 MA's), (111, 44086), (118, 44110), (119, 44113), (127, 44140), (136, 44167),  
(141, 44194),

Gene: MisoSoup\_49 Start: 32203, Stop: 32030, Start Num: 103  
Candidate Starts for MisoSoup\_49:  
(58, 32338), (101, 32206), (103, 32203), (132, 32110), (136, 32092),

Gene: MissDaisy\_63 Start: 40826, Stop: 41044, Start Num: 86  
Candidate Starts for MissDaisy\_63:  
(40, 40667), (42, 40676), (Start: 86 @40826 has 22 MA's), (122, 40943), (133, 40979), (137, 40994),  
(139, 41000),

Gene: Mitti\_66 Start: 42093, Stop: 42311, Start Num: 86  
Candidate Starts for Mitti\_66:

(40, 41934), (42, 41943), (Start: 86 @42093 has 22 MA's), (122, 42210), (133, 42246), (137, 42261),

Gene: ModicumRichard\_117 Start: 65073, Stop: 64867, Start Num: 93

Candidate Starts for ModicumRichard\_117:

(Start: 93 @65073 has 24 MA's), (112, 65001), (118, 64986), (123, 64971),

Gene: Morgana\_124 Start: 67243, Stop: 67037, Start Num: 93

Candidate Starts for Morgana\_124:

(64, 67312), (Start: 93 @67243 has 24 MA's), (112, 67171), (118, 67156), (123, 67141),

Gene: MortySmith\_74 Start: 52505, Stop: 52693, Start Num: 99

Candidate Starts for MortySmith\_74:

(Start: 95 @52490 has 1 MA's), (Start: 99 @52505 has 34 MA's), (115, 52562), (139, 52640), (141, 52658), (143, 52670),

Gene: Mulch\_71 Start: 47994, Stop: 48194, Start Num: 90

Candidate Starts for Mulch\_71:

(59, 47910), (61, 47916), (77, 47970), (82, 47982), (Start: 90 @47994 has 10 MA's),

Gene: MunkgeeRoachy\_47 Start: 35379, Stop: 35146, Start Num: 71

Candidate Starts for MunkgeeRoachy\_47:

(Start: 71 @35379 has 26 MA's), (102, 35295), (124, 35235),

Gene: Murucutumbu\_65 Start: 43862, Stop: 44077, Start Num: 80

Candidate Starts for Murucutumbu\_65:

(57, 43784), (Start: 80 @43862 has 86 MA's), (111, 43949), (114, 43958),

Gene: Mynx\_65 Start: 43204, Stop: 43422, Start Num: 80

Candidate Starts for Mynx\_65:

(55, 43126), (Start: 80 @43204 has 86 MA's), (111, 43291), (114, 43300),

Gene: Nadeem\_71 Start: 47982, Stop: 48182, Start Num: 90

Candidate Starts for Nadeem\_71:

(59, 47898), (61, 47904), (77, 47958), (82, 47970), (Start: 90 @47982 has 10 MA's),

Gene: NarutoRun\_76 Start: 53365, Stop: 53553, Start Num: 99

Candidate Starts for NarutoRun\_76:

(Start: 95 @53350 has 1 MA's), (Start: 99 @53365 has 34 MA's), (115, 53422), (139, 53500), (141, 53518), (143, 53530),

Gene: Neptune\_76 Start: 53395, Stop: 53583, Start Num: 99

Candidate Starts for Neptune\_76:

(Start: 95 @53380 has 1 MA's), (Start: 99 @53395 has 34 MA's), (115, 53452), (139, 53530), (141, 53548), (143, 53560),

Gene: Nibb\_66 Start: 42981, Stop: 43193, Start Num: 85

Candidate Starts for Nibb\_66:

(12, 42507), (Start: 85 @42981 has 67 MA's), (106, 43044), (111, 43062), (114, 43071), (132, 43122),

Gene: Niklas\_66 Start: 43145, Stop: 43354, Start Num: 85

Candidate Starts for Niklas\_66:

(Start: 85 @43145 has 67 MA's), (111, 43226), (114, 43235),

Gene: Nina\_48 Start: 36199, Stop: 35966, Start Num: 71  
Candidate Starts for Nina\_48:  
(Start: 71 @36199 has 26 MA's), (102, 36115), (124, 36055),

Gene: Nodigi\_56 Start: 38471, Stop: 38268, Start Num: 79  
Candidate Starts for Nodigi\_56:  
(Start: 79 @38471 has 8 MA's), (Start: 94 @38450 has 1 MA's), (120, 38369), (125, 38348), (129, 38339), (138, 38312),

Gene: November\_61 Start: 42834, Stop: 43046, Start Num: 85  
Candidate Starts for November\_61:  
(2, 42144), (5, 42228), (6, 42234), (8, 42282), (9, 42309), (10, 42333), (13, 42375), (33, 42657), (Start: 85 @42834 has 67 MA's), (111, 42915), (114, 42924), (139, 42999),

Gene: Nyilah\_48 Start: 29132, Stop: 29323, Start Num: 93  
Candidate Starts for Nyilah\_48:  
(76, 29102), (Start: 93 @29132 has 24 MA's), (111, 29201),

Gene: ObLaDi\_116 Start: 64475, Stop: 64269, Start Num: 93  
Candidate Starts for ObLaDi\_116:  
(Start: 93 @64475 has 24 MA's), (112, 64403), (118, 64388), (123, 64373),

Gene: OhDear\_76 Start: 53363, Stop: 53551, Start Num: 99  
Candidate Starts for OhDear\_76:  
(Start: 95 @53348 has 1 MA's), (Start: 99 @53363 has 34 MA's), (115, 53420), (139, 53498), (141, 53516), (143, 53528),

Gene: OkiRoe\_58 Start: 41679, Stop: 41891, Start Num: 85  
Candidate Starts for OkiRoe\_58:  
(Start: 85 @41679 has 67 MA's), (111, 41757), (118, 41781), (119, 41784), (127, 41811), (136, 41838), (141, 41865),

Gene: OmniCritical\_65 Start: 41983, Stop: 42201, Start Num: 86  
Candidate Starts for OmniCritical\_65:  
(40, 41824), (42, 41833), (Start: 86 @41983 has 22 MA's), (122, 42100), (133, 42136), (137, 42151),

Gene: Omnicron\_61 Start: 41791, Stop: 42003, Start Num: 85  
Candidate Starts for Omnicron\_61:  
(67, 41737), (Start: 85 @41791 has 67 MA's), (107, 41857), (111, 41869), (119, 41896), (136, 41950), (141, 41977),

Gene: Orla\_56 Start: 38400, Stop: 38197, Start Num: 79  
Candidate Starts for Orla\_56:  
(Start: 79 @38400 has 8 MA's), (Start: 94 @38379 has 1 MA's), (120, 38298), (125, 38277), (129, 38268), (138, 38241),

Gene: Oscar\_67 Start: 43187, Stop: 43396, Start Num: 85  
Candidate Starts for Oscar\_67:  
(Start: 85 @43187 has 67 MA's), (97, 43208), (106, 43250), (111, 43268), (114, 43277), (121, 43301),

Gene: OverHedge\_75 Start: 53261, Stop: 53449, Start Num: 99  
Candidate Starts for OverHedge\_75:

(Start: 95 @53246 has 1 MA's), (Start: 99 @53261 has 34 MA's), (115, 53318), (139, 53396), (141, 53414), (143, 53426),

Gene: Padfoot\_63 Start: 42792, Stop: 43007, Start Num: 80  
Candidate Starts for Padfoot\_63:  
(Start: 80 @42792 has 86 MA's), (111, 42879), (114, 42888),

Gene: Padpat\_66 Start: 42909, Stop: 43127, Start Num: 80  
Candidate Starts for Padpat\_66:  
(Start: 80 @42909 has 86 MA's), (111, 42996), (114, 43005),

Gene: Paola\_57 Start: 41282, Stop: 41494, Start Num: 85  
Candidate Starts for Paola\_57:  
(Start: 85 @41282 has 67 MA's), (111, 41360), (118, 41384), (119, 41387), (131, 41420), (136, 41441), (141, 41468),

Gene: Parada\_71 Start: 47994, Stop: 48194, Start Num: 90  
Candidate Starts for Parada\_71:  
(59, 47910), (61, 47916), (77, 47970), (82, 47982), (Start: 90 @47994 has 10 MA's),

Gene: Patt\_62 Start: 40550, Stop: 40768, Start Num: 86  
Candidate Starts for Patt\_62:  
(40, 40391), (42, 40400), (Start: 86 @40550 has 22 MA's), (122, 40667), (133, 40703), (137, 40718), (139, 40724),

Gene: Peanam\_66 Start: 43103, Stop: 43312, Start Num: 85  
Candidate Starts for Peanam\_66:  
(31, 42923), (Start: 85 @43103 has 67 MA's), (111, 43184), (114, 43193),

Gene: Peel\_63 Start: 42597, Stop: 42812, Start Num: 80  
Candidate Starts for Peel\_63:  
(Start: 80 @42597 has 86 MA's), (111, 42684), (114, 42693),

Gene: Pharb\_63 Start: 42257, Stop: 42469, Start Num: 85  
Candidate Starts for Pharb\_63:  
(78, 42242), (Start: 85 @42257 has 67 MA's), (114, 42347),

Gene: Pharpay\_75 Start: 53410, Stop: 53598, Start Num: 99  
Candidate Starts for Pharpay\_75:  
(Start: 95 @53395 has 1 MA's), (Start: 99 @53410 has 34 MA's), (115, 53467), (139, 53545), (141, 53563), (143, 53575),

Gene: PhelpsODU\_65 Start: 42337, Stop: 42549, Start Num: 85  
Candidate Starts for PhelpsODU\_65:  
(3, 41674), (4, 41698), (7, 41770), (15, 41923), (33, 42154), (Start: 85 @42337 has 67 MA's), (111, 42418), (114, 42427),

Gene: Phrank\_67 Start: 42401, Stop: 42613, Start Num: 85  
Candidate Starts for Phrank\_67:  
(3, 41735), (4, 41759), (7, 41834), (15, 41987), (33, 42218), (Start: 85 @42401 has 67 MA's), (111, 42482), (114, 42491),

Gene: PhunaPhoke\_76 Start: 53380, Stop: 53568, Start Num: 99

Candidate Starts for PhunaPhoke\_76:

(Start: 95 @53365 has 1 MA's), (Start: 99 @53380 has 34 MA's), (115, 53437), (139, 53515), (141, 53533), (143, 53545),

Gene: Piatt\_63 Start: 42792, Stop: 43007, Start Num: 80

Candidate Starts for Piatt\_63:

(Start: 80 @42792 has 86 MA's), (111, 42879), (114, 42888),

Gene: Pisa1\_63 Start: 43410, Stop: 43625, Start Num: 80

Candidate Starts for Pisa1\_63:

(Start: 80 @43410 has 86 MA's), (111, 43497), (114, 43506),

Gene: Pixie\_63 Start: 42430, Stop: 42642, Start Num: 85

Candidate Starts for Pixie\_63:

(Start: 85 @42430 has 67 MA's), (114, 42520), (139, 42595),

Gene: Pokerus\_63 Start: 42937, Stop: 43152, Start Num: 80

Candidate Starts for Pokerus\_63:

(57, 42859), (Start: 80 @42937 has 86 MA's), (111, 43024), (114, 43033),

Gene: Potty\_75 Start: 53310, Stop: 53498, Start Num: 99

Candidate Starts for Potty\_75:

(Start: 95 @53295 has 1 MA's), (Start: 99 @53310 has 34 MA's), (115, 53367), (139, 53445), (141, 53463), (143, 53475),

Gene: Poultruss\_75 Start: 53607, Stop: 53795, Start Num: 99

Candidate Starts for Poultruss\_75:

(Start: 95 @53592 has 1 MA's), (Start: 99 @53607 has 34 MA's), (115, 53664), (139, 53742), (141, 53760), (143, 53772),

Gene: Prithvi\_65 Start: 43082, Stop: 43297, Start Num: 80

Candidate Starts for Prithvi\_65:

(57, 43004), (Start: 80 @43082 has 86 MA's), (111, 43169), (114, 43178),

Gene: Psycho\_57 Start: 39909, Stop: 40121, Start Num: 85

Candidate Starts for Psycho\_57:

(Start: 85 @39909 has 67 MA's), (111, 39987), (118, 40011), (119, 40014), (127, 40041), (136, 40068),

Gene: Pupper\_157 Start: 111884, Stop: 112147, Start Num: 65

Candidate Starts for Pupper\_157:

(52, 111839), (64, 111881), (Start: 65 @111884 has 3 MA's), (119, 112034), (128, 112070), (133, 112082),

Gene: Qhanda\_68 Start: 41930, Stop: 42148, Start Num: 86

Candidate Starts for Qhanda\_68:

(40, 41771), (42, 41780), (Start: 86 @41930 has 22 MA's), (122, 42047), (133, 42083), (137, 42098),

Gene: Quasar\_49 Start: 36624, Stop: 36391, Start Num: 71

Candidate Starts for Quasar\_49:

(Start: 71 @36624 has 26 MA's), (102, 36540), (124, 36480),

Gene: QuincyRose\_62 Start: 42817, Stop: 43032, Start Num: 80

Candidate Starts for QuincyRose\_62:

(Start: 80 @42817 has 86 MA's), (111, 42904), (114, 42913),

Gene: Rachella\_76 Start: 53391, Stop: 53579, Start Num: 99

Candidate Starts for Rachella\_76:

(Start: 95 @53376 has 1 MA's), (Start: 99 @53391 has 34 MA's), (115, 53448), (139, 53526), (141, 53544), (143, 53556),

Gene: Ramen\_64 Start: 42442, Stop: 42657, Start Num: 80

Candidate Starts for Ramen\_64:

(Start: 80 @42442 has 86 MA's), (111, 42529), (114, 42538),

Gene: RanchParmCat\_53 Start: 37255, Stop: 37052, Start Num: 79

Candidate Starts for RanchParmCat\_53:

(Start: 79 @37255 has 8 MA's), (88, 37243), (Start: 94 @37234 has 1 MA's), (96, 37228), (108, 37177), (120, 37153),

Gene: Rando14\_59 Start: 39518, Stop: 39730, Start Num: 85

Candidate Starts for Rando14\_59:

(60, 39443), (63, 39452), (67, 39464), (Start: 85 @39518 has 67 MA's), (111, 39596), (118, 39620), (119, 39623), (136, 39677), (141, 39704),

Gene: Raphaella\_49 Start: 30457, Stop: 30648, Start Num: 93

Candidate Starts for Raphaella\_49:

(Start: 93 @30457 has 24 MA's),

Gene: Rapunzel97\_65 Start: 42892, Stop: 43107, Start Num: 80

Candidate Starts for Rapunzel97\_65:

(57, 42814), (Start: 80 @42892 has 86 MA's), (111, 42979), (114, 42988),

Gene: RedBaron\_51 Start: 36246, Stop: 36013, Start Num: 71

Candidate Starts for RedBaron\_51:

(Start: 71 @36246 has 26 MA's), (102, 36162),

Gene: RedWattleHog\_174 Start: 111466, Stop: 111675, Start Num: 87

Candidate Starts for RedWattleHog\_174:

(84, 111463), (Start: 87 @111466 has 7 MA's), (135, 111625), (142, 111655),

Gene: Reptar3000\_63 Start: 40538, Stop: 40756, Start Num: 86

Candidate Starts for Reptar3000\_63:

(40, 40379), (42, 40388), (Start: 86 @40538 has 22 MA's), (122, 40655), (133, 40691), (137, 40706), (139, 40712),

Gene: Richo\_66 Start: 43084, Stop: 43293, Start Num: 85

Candidate Starts for Richo\_66:

(31, 42904), (Start: 85 @43084 has 67 MA's), (111, 43165), (114, 43174),

Gene: Rie18\_76 Start: 53133, Stop: 53321, Start Num: 99

Candidate Starts for Rie18\_76:

(Start: 95 @53118 has 1 MA's), (Start: 99 @53133 has 34 MA's), (139, 53268), (141, 53286), (143, 53298),

Gene: RikSengupta\_62 Start: 42469, Stop: 42660, Start Num: 93

Candidate Starts for RikSengupta\_62:



(91, 42466), (Start: 93 @42469 has 24 MA's), (97, 42478), (119, 42559), (134, 42598),

Gene: Rosmarinus\_63 Start: 42583, Stop: 42798, Start Num: 80

Candidate Starts for Rosmarinus\_63:

(Start: 80 @42583 has 86 MA's), (111, 42670), (114, 42679),

Gene: Ruthiejr\_67 Start: 41964, Stop: 42182, Start Num: 86

Candidate Starts for Ruthiejr\_67:

(40, 41805), (42, 41814), (Start: 86 @41964 has 22 MA's), (122, 42081), (133, 42117), (137, 42132),

Gene: SCentae\_156 Start: 112038, Stop: 112301, Start Num: 65

Candidate Starts for SCentae\_156:

(52, 111993), (64, 112035), (Start: 65 @112038 has 3 MA's), (119, 112188), (128, 112224), (133, 112236),

Gene: Sakai\_48 Start: 30191, Stop: 30385, Start Num: 93

Candidate Starts for Sakai\_48:

(Start: 93 @30191 has 24 MA's), (111, 30260), (139, 30338),

Gene: SamScheppers\_64 Start: 42393, Stop: 42611, Start Num: 86

Candidate Starts for SamScheppers\_64:

(40, 42234), (42, 42243), (Start: 86 @42393 has 22 MA's), (122, 42510), (133, 42546), (137, 42561),

Gene: SamuelLPlaqson\_64 Start: 43328, Stop: 43543, Start Num: 80

Candidate Starts for SamuelLPlaqson\_64:

(Start: 80 @43328 has 86 MA's), (111, 43415), (114, 43424),

Gene: Scarlett\_68 Start: 43514, Stop: 43726, Start Num: 85

Candidate Starts for Scarlett\_68:

(Start: 85 @43514 has 67 MA's), (97, 43535), (106, 43577), (111, 43595), (114, 43604), (121, 43628),

Gene: SgtBeansprout\_52 Start: 39754, Stop: 39963, Start Num: 85

Candidate Starts for SgtBeansprout\_52:

(Start: 85 @39754 has 67 MA's), (111, 39835), (114, 39844),

Gene: Shadow1\_68 Start: 42852, Stop: 43064, Start Num: 85

Candidate Starts for Shadow1\_68:

(Start: 85 @42852 has 67 MA's), (111, 42933), (114, 42942),

Gene: Shaobing\_66 Start: 43121, Stop: 43330, Start Num: 85

Candidate Starts for Shaobing\_66:

(31, 42941), (Start: 85 @43121 has 67 MA's), (111, 43202), (114, 43211),

Gene: ShedlockHolmes\_65 Start: 42949, Stop: 43161, Start Num: 85

Candidate Starts for ShedlockHolmes\_65:

(Start: 85 @42949 has 67 MA's), (114, 43039), (139, 43114),

Gene: ShiaSurprise\_64 Start: 42792, Stop: 43007, Start Num: 80

Candidate Starts for ShiaSurprise\_64:

(Start: 80 @42792 has 86 MA's), (111, 42879), (114, 42888),

Gene: SilentWarrior\_77 Start: 52768, Stop: 52956, Start Num: 99

Candidate Starts for SilentWarrior\_77:

(Start: 95 @52753 has 1 MA's), (Start: 99 @52768 has 34 MA's), (115, 52825), (139, 52903), (141, 52921), (143, 52933),

Gene: SketchMex\_50 Start: 36207, Stop: 35971, Start Num: 71

Candidate Starts for SketchMex\_50:

(62, 36225), (Start: 71 @36207 has 26 MA's), (124, 36060), (126, 36048), (127, 36045),

Gene: Skog\_217 Start: 141536, Stop: 141781, Start Num: 74

Candidate Starts for Skog\_217:

(Start: 74 @141536 has 1 MA's), (Start: 104 @141623 has 1 MA's), (109, 141641), (119, 141668), (124, 141683), (128, 141701),

Gene: Slarp\_66 Start: 41921, Stop: 42139, Start Num: 86

Candidate Starts for Slarp\_66:

(40, 41762), (42, 41771), (Start: 86 @41921 has 22 MA's), (122, 42038), (133, 42074), (137, 42089),

Gene: Slimphazie\_64 Start: 42892, Stop: 43107, Start Num: 80

Candidate Starts for Slimphazie\_64:

(57, 42814), (Start: 80 @42892 has 86 MA's), (111, 42979), (114, 42988),

Gene: Snakehole\_77 Start: 52751, Stop: 52939, Start Num: 99

Candidate Starts for Snakehole\_77:

(Start: 95 @52736 has 1 MA's), (Start: 99 @52751 has 34 MA's), (115, 52808), (139, 52886), (141, 52904), (143, 52916),

Gene: SoSeph\_58 Start: 41654, Stop: 41866, Start Num: 85

Candidate Starts for SoSeph\_58:

(Start: 85 @41654 has 67 MA's), (111, 41732), (118, 41756), (119, 41759), (131, 41792), (136, 41813), (141, 41840),

Gene: Sparcetus\_62 Start: 42346, Stop: 42537, Start Num: 93

Candidate Starts for Sparcetus\_62:

(91, 42343), (Start: 93 @42346 has 24 MA's), (97, 42355), (119, 42436), (134, 42475),

Gene: Spock\_63 Start: 42596, Stop: 42811, Start Num: 80

Candidate Starts for Spock\_63:

(Start: 80 @42596 has 86 MA's), (111, 42683), (114, 42692),

Gene: Sporco\_51 Start: 30638, Stop: 30829, Start Num: 93

Candidate Starts for Sporco\_51:

(20, 30344), (21, 30362), (23, 30392), (26, 30410), (27, 30434), (39, 30467), (41, 30470), (44, 30497), (Start: 71 @30581 has 26 MA's), (Start: 93 @30638 has 24 MA's),

Gene: SteamedHams\_49 Start: 35394, Stop: 35161, Start Num: 71

Candidate Starts for SteamedHams\_49:

(32, 35529), (36, 35520), (37, 35517), (47, 35469), (51, 35457), (Start: 71 @35394 has 26 MA's), (102, 35310), (124, 35250),

Gene: Stinson\_65 Start: 43220, Stop: 43435, Start Num: 80

Candidate Starts for Stinson\_65:

(Start: 80 @43220 has 86 MA's), (111, 43307), (114, 43316),

Gene: Stormageddon\_175 Start: 112431, Stop: 112640, Start Num: 87

Candidate Starts for Stormageddon\_175:  
(84, 112428), (Start: 87 @112431 has 7 MA's), (135, 112590), (142, 112620),

Gene: Sulley\_63 Start: 42656, Stop: 42871, Start Num: 80  
Candidate Starts for Sulley\_63:  
(Start: 80 @42656 has 86 MA's), (111, 42743), (114, 42752),

Gene: Sunflower1121\_69 Start: 42998, Stop: 43210, Start Num: 85  
Candidate Starts for Sunflower1121\_69:  
(Start: 85 @42998 has 67 MA's), (111, 43079), (114, 43088),

Gene: SweatNTears\_51 Start: 36160, Stop: 35927, Start Num: 71  
Candidate Starts for SweatNTears\_51:  
(Start: 71 @36160 has 26 MA's), (102, 36076), (124, 36016),

Gene: Syra333\_67 Start: 42711, Stop: 42923, Start Num: 85  
Candidate Starts for Syra333\_67:  
(33, 42528), (Start: 85 @42711 has 67 MA's), (111, 42792), (114, 42801),

Gene: TClif\_64 Start: 42546, Stop: 42758, Start Num: 85  
Candidate Starts for TClif\_64:  
(Start: 85 @42546 has 67 MA's), (111, 42627), (114, 42636), (139, 42711),

Gene: TPA4\_81 Start: 53987, Stop: 54289, Start Num: 56  
Candidate Starts for TPA4\_81:  
(1, 53147), (16, 53672), (28, 53882), (50, 53957), (56, 53987),

Gene: Tachez\_63 Start: 42440, Stop: 42655, Start Num: 80  
Candidate Starts for Tachez\_63:  
(Start: 80 @42440 has 86 MA's), (111, 42527), (114, 42536),

Gene: TaiwanKao\_66 Start: 43144, Stop: 43359, Start Num: 80  
Candidate Starts for TaiwanKao\_66:  
(57, 43066), (Start: 80 @43144 has 86 MA's), (111, 43231), (114, 43240),

Gene: Taquito\_65 Start: 42156, Stop: 42374, Start Num: 86  
Candidate Starts for Taquito\_65:  
(40, 41997), (42, 42006), (Start: 86 @42156 has 22 MA's), (122, 42273), (133, 42309), (137, 42324),

Gene: Tedro\_76 Start: 52895, Stop: 53083, Start Num: 99  
Candidate Starts for Tedro\_76:  
(81, 52859), (Start: 95 @52880 has 1 MA's), (Start: 99 @52895 has 34 MA's), (115, 52952), (141, 53048), (143, 53060),

Gene: Thyatira\_60 Start: 43612, Stop: 43824, Start Num: 85  
Candidate Starts for Thyatira\_60:  
(Start: 85 @43612 has 67 MA's), (111, 43690), (118, 43714), (119, 43717), (131, 43750), (136, 43771), (141, 43798),

Gene: Tierra\_67 Start: 43212, Stop: 43424, Start Num: 85  
Candidate Starts for Tierra\_67:  
(3, 42546), (4, 42570), (7, 42645), (15, 42798), (33, 43029), (Start: 85 @43212 has 67 MA's), (111, 43293), (114, 43302),

Gene: Tiff81\_46 Start: 28970, Stop: 29161, Start Num: 93

Candidate Starts for Tiff81\_46:

(Start: 93 @28970 has 24 MA's),

Gene: TingHuaYa\_67 Start: 42388, Stop: 42606, Start Num: 80

Candidate Starts for TingHuaYa\_67:

(43, 42253), (55, 42310), (Start: 80 @42388 has 86 MA's), (111, 42475), (114, 42484),

Gene: TiniBug\_64 Start: 43324, Stop: 43539, Start Num: 80

Candidate Starts for TiniBug\_64:

(Start: 80 @43324 has 86 MA's), (111, 43411), (114, 43420),

Gene: TinyMiny\_62 Start: 42368, Stop: 42559, Start Num: 93

Candidate Starts for TinyMiny\_62:

(Start: 93 @42368 has 24 MA's), (111, 42434), (117, 42452),

Gene: Tiri\_64 Start: 42728, Stop: 42943, Start Num: 80

Candidate Starts for Tiri\_64:

(Start: 80 @42728 has 86 MA's), (111, 42815), (114, 42824),

Gene: Tolls\_50 Start: 35802, Stop: 35551, Start Num: 71

Candidate Starts for Tolls\_50:

(Start: 71 @35802 has 26 MA's), (73, 35796), (116, 35673), (128, 35628),

Gene: Tongui\_77 Start: 53245, Stop: 53433, Start Num: 99

Candidate Starts for Tongui\_77:

(Start: 95 @53230 has 1 MA's), (Start: 99 @53245 has 34 MA's), (139, 53380), (141, 53398), (143, 53410),

Gene: Topper\_63 Start: 42595, Stop: 42810, Start Num: 80

Candidate Starts for Topper\_63:

(Start: 80 @42595 has 86 MA's), (111, 42682), (114, 42691),

Gene: TreyKay\_65 Start: 43082, Stop: 43297, Start Num: 80

Candidate Starts for TreyKay\_65:

(57, 43004), (Start: 80 @43082 has 86 MA's), (111, 43169), (114, 43178),

Gene: TribbleTrouble\_64 Start: 43429, Stop: 43641, Start Num: 85

Candidate Starts for TribbleTrouble\_64:

(14, 43003), (33, 43246), (Start: 85 @43429 has 67 MA's), (114, 43519),

Gene: Trogglehumper\_5 Start: 2263, Stop: 2457, Start Num: 92

Candidate Starts for Trogglehumper\_5:

(Start: 92 @2263 has 1 MA's), (105, 2314), (110, 2332), (117, 2356),

Gene: Troje\_52 Start: 36545, Stop: 36309, Start Num: 71

Candidate Starts for Troje\_52:

(62, 36563), (Start: 71 @36545 has 26 MA's), (124, 36398), (126, 36386), (127, 36383),

Gene: TruffulaTree\_64 Start: 42888, Stop: 43103, Start Num: 80

Candidate Starts for TruffulaTree\_64:

(57, 42810), (Start: 80 @42888 has 86 MA's), (111, 42975), (114, 42984),

Gene: Twitch\_63 Start: 42597, Stop: 42812, Start Num: 80  
Candidate Starts for Twitch\_63:  
(Start: 80 @42597 has 86 MA's), (111, 42684), (114, 42693),

Gene: Typha\_89 Start: 58872, Stop: 59093, Start Num: 87  
Candidate Starts for Typha\_89:  
(Start: 87 @58872 has 7 MA's), (100, 58908), (107, 58938),

Gene: Typhonomachy\_48 Start: 35740, Stop: 35507, Start Num: 71  
Candidate Starts for Typhonomachy\_48:  
(Start: 71 @35740 has 26 MA's), (102, 35656), (124, 35596),

Gene: Unicorn\_65 Start: 42337, Stop: 42549, Start Num: 85  
Candidate Starts for Unicorn\_65:  
(3, 41674), (4, 41698), (7, 41770), (15, 41923), (33, 42154), (Start: 85 @42337 has 67 MA's), (111, 42418), (114, 42427),

Gene: Urkel\_64 Start: 43328, Stop: 43543, Start Num: 80  
Candidate Starts for Urkel\_64:  
(Start: 80 @43328 has 86 MA's), (111, 43415), (114, 43424),

Gene: Validus\_68 Start: 43466, Stop: 43675, Start Num: 85  
Candidate Starts for Validus\_68:  
(Start: 85 @43466 has 67 MA's), (111, 43547), (114, 43556), (139, 43631),

Gene: VanLee\_109 Start: 57771, Stop: 57962, Start Num: 93  
Candidate Starts for VanLee\_109:  
(Start: 93 @57771 has 24 MA's), (141, 57936),

Gene: Veliki\_65 Start: 42859, Stop: 43077, Start Num: 80  
Candidate Starts for Veliki\_65:  
(55, 42781), (Start: 80 @42859 has 86 MA's), (111, 42946), (114, 42955),

Gene: ViviJ\_56 Start: 39373, Stop: 39585, Start Num: 85  
Candidate Starts for ViviJ\_56:  
(60, 39298), (63, 39307), (67, 39319), (Start: 85 @39373 has 67 MA's), (97, 39391), (111, 39451), (118, 39475), (119, 39478), (127, 39505), (136, 39532), (144, 39580),

Gene: Vopal\_52 Start: 33686, Stop: 33877, Start Num: 93  
Candidate Starts for Vopal\_52:  
(Start: 93 @33686 has 24 MA's),

Gene: Waterfoul\_59 Start: 41716, Stop: 41928, Start Num: 85  
Candidate Starts for Waterfoul\_59:  
(Start: 85 @41716 has 67 MA's), (111, 41794), (118, 41818), (119, 41821), (131, 41854), (136, 41875), (141, 41902),

Gene: WheatThin\_71 Start: 47982, Stop: 48182, Start Num: 90  
Candidate Starts for WheatThin\_71:  
(59, 47898), (61, 47904), (77, 47958), (82, 47970), (Start: 90 @47982 has 10 MA's),

Gene: Wintermute\_66 Start: 42151, Stop: 42369, Start Num: 86

Candidate Starts for Wintermute\_66:

(40, 41992), (42, 42001), (Start: 86 @42151 has 22 MA's), (122, 42268), (133, 42304), (137, 42319),

Gene: Ximenita\_69 Start: 43037, Stop: 43249, Start Num: 85

Candidate Starts for Ximenita\_69:

(33, 42854), (Start: 85 @43037 has 67 MA's), (111, 43118), (114, 43127),

Gene: Y10\_64 Start: 42079, Stop: 42297, Start Num: 86

Candidate Starts for Y10\_64:

(40, 41920), (42, 41929), (Start: 86 @42079 has 22 MA's), (122, 42196), (133, 42232), (137, 42247),

Gene: Y2\_64 Start: 42079, Stop: 42297, Start Num: 86

Candidate Starts for Y2\_64:

(40, 41920), (42, 41929), (Start: 86 @42079 has 22 MA's), (122, 42196), (133, 42232), (137, 42247),

Gene: Yakult\_51 Start: 37137, Stop: 36952, Start Num: 94

Candidate Starts for Yakult\_51:

(67, 37200), (Start: 79 @37158 has 8 MA's), (Start: 94 @37137 has 1 MA's), (Start: 104 @37098 has 1 MA's), (120, 37056), (126, 37032), (138, 36996),

Gene: Yarn\_46 Start: 35565, Stop: 35314, Start Num: 71

Candidate Starts for Yarn\_46:

(Start: 71 @35565 has 26 MA's), (73, 35559), (116, 35436), (128, 35391),

Gene: YasnayaPolyana\_65 Start: 42004, Stop: 42222, Start Num: 86

Candidate Starts for YasnayaPolyana\_65:

(40, 41845), (42, 41854), (Start: 86 @42004 has 22 MA's), (122, 42121), (133, 42157), (137, 42172),

Gene: YoungHarleezy\_50 Start: 31023, Stop: 31214, Start Num: 93

Candidate Starts for YoungHarleezy\_50:

(Start: 93 @31023 has 24 MA's),

Gene: YoureAdopted\_63 Start: 43008, Stop: 43223, Start Num: 80

Candidate Starts for YoureAdopted\_63:

(57, 42930), (Start: 80 @43008 has 86 MA's), (111, 43095), (114, 43104),

Gene: Yummy\_52 Start: 36254, Stop: 36018, Start Num: 71

Candidate Starts for Yummy\_52:

(62, 36272), (Start: 71 @36254 has 26 MA's), (124, 36107), (126, 36095), (127, 36092),

Gene: Yunkel11\_68 Start: 42904, Stop: 43122, Start Num: 80

Candidate Starts for Yunkel11\_68:

(55, 42826), (Start: 80 @42904 has 86 MA's), (111, 42991), (114, 43000),

Gene: Zabiza\_58 Start: 38745, Stop: 38960, Start Num: 80

Candidate Starts for Zabiza\_58:

(Start: 80 @38745 has 86 MA's), (111, 38832), (114, 38841),

Gene: Zavala\_66 Start: 43164, Stop: 43382, Start Num: 80

Candidate Starts for Zavala\_66:

(55, 43086), (Start: 80 @43164 has 86 MA's), (111, 43251), (114, 43260),