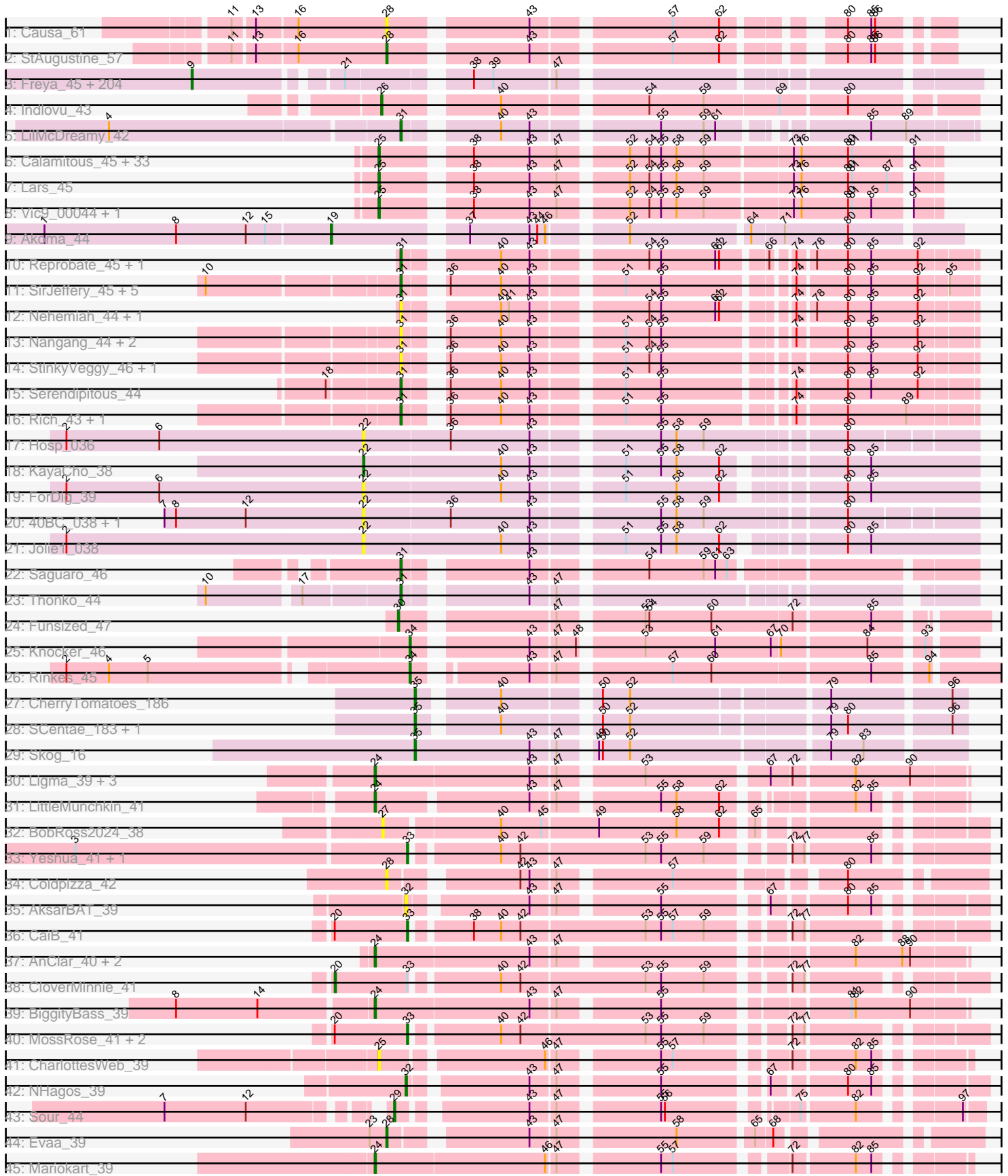


Pham 215757



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 215757 Report

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

Pham number 215757 has 304 members, 41 are drafts.

Phages represented in each track:

- Track 1 : Causa\_61
- Track 2 : StAugustine\_57
- Track 3 : Freya\_45, Morgushi\_46, Bluephacebaby\_45, Ricotta\_45, Longacauda\_45, Swiphy\_48, Olive\_46, Hamish\_46, Melc17\_46, Grand2040\_45, Pops\_46, AltPhacts\_46, Altwerkus\_45, Spartan300\_46, KLucky39\_46, Phunky\_46, Beaglebox\_45, Hocus\_45, Kwadwo\_45, Cher\_45, Burr\_45, Vortex\_46, Cannibal\_46, LeeLot\_46, Nathan\_47, Gophee\_46, Podrick\_46, Potter\_45, JangoPhett\_46, Hartsy\_46, Veritas\_45, JakeO\_45, DoesntMatter\_45, KingTut\_37, Megamind20\_46, Piglet\_0045, Roscoe\_47, Schadenfreude\_45, Skippy\_46, Sophia\_45, Plata\_46, CamL\_46, Fozzie\_45, MiniBoss\_46, MrPhizzler\_45, Vaticameos\_42, Vivaldi\_46, Timmi\_45, Jesabah\_46, True\_45, Solosis\_45, Serpentine\_0046, Murdoc\_46, Etaye\_46, Dice\_45, CheetO\_46, Pacifista\_45, Horchata\_46, Lasso\_46, AbsoluteMadLad\_45, Duggie\_45, BlueHusk\_46, MichaelPhcott\_45, KingVeVeVe\_46, Serendipity\_46, Waterdiva\_46, Pipsqueak\_46, Iridoclysis\_46, Crownjwl\_46, PhrankReynolds\_44, LostAndPhound\_45, ProfessorX\_46, MRabcd\_45, Telesworld\_45, Puhltonio\_46, Brilliant\_46, Charles1\_46, Kailash\_46, Schueller\_45, GeneCoco\_46, Struggle\_45, Dingo\_46, Mesh1\_46, Cobra\_46, Kahve\_45, Selr12\_46, Phergie\_45, Mana\_45, Simielle\_45, QueenBeane\_46, LeiMonet\_47, Kimbrough\_46, Gyarad\_0046, Riggan\_46, SDcharge11\_46, Slatt\_46, PhatLouie\_46, LemonSlice\_46, Magic8\_46, Giraffe\_46, Weher20\_46, Olak\_45, Quisquilliae\_46, Gwennie1\_46, Omniscient\_46, MitKao\_46, Oosterbaan\_46, Squiggle\_46, TomBombadil\_46, YouGoGlencoco\_46, AngelCake\_45, FugateOSU\_45, Maru\_45, Scrick\_46, Kloppinator\_46, Rimu\_48, Xavier\_45, Lulwa\_46, PinheadLarry\_46, Pinkman\_45, Wallhey\_45, Anderson\_46, Soto\_46, Banjo\_45, HSavage\_46, Labeouficaum\_45, CharlieGBrown\_45, Jillium\_45, Held\_46, Doddsville\_46, Bishoperium\_45, Khan1\_46, Placalicious\_45, Zaider\_47, Mecca\_45, Thunderbird\_45, Mcshane\_45, Cosmolli16\_45, HenryJackson\_45, BatteryCK\_45, Toni\_45, SilverBell\_46, Surely\_46, TyrionL\_45, KlimbOn\_46, Caspiboi\_47, Vista\_46, UAch1\_46, Lumine\_45, Chorkpop\_46, Plmatters\_46, Mikota\_46, Derpp\_45, Childish\_45, FriarPreacher\_45, Numberten\_46, Jiraiya\_45, Vaishali24\_45, Haimas\_46, Virapocalypse\_46, DirtJuice\_46, Kwksand96\_45, Zelda\_46, Roliet\_46, SassyCat97\_45, EmpTee\_46, Newman\_46, Carthage\_44, ShiVal\_46, Matalotodo\_46, Boehler\_46, Oline\_45, Orfeu\_45, Tomlarah\_46, Mag7\_45, Buckeye\_46, TallGrassMM\_46, Cornbread\_46, Inverness\_46, Dione\_45, Nyala\_45, Haleema\_45, Hertubise\_46, DaddyDaniels\_46, Riverton\_45, Thora\_46, Orwigg\_45, Nicole21\_46, Squid\_46, Mesmerelda\_47, Samaymay\_46, Jiminy\_45, Daffy\_46, Sheila\_46, Phareon\_46, Valjean\_46, DelRivs\_45, Iridessa\_47, OliverWalter\_46, Hetaeria\_46, Frankicide\_46,

LuckyMarjie\_45, Phipps\_46, PhenghisKhan\_45, Phleuron\_45

- Track 4 : Indlovu\_43
- Track 5 : LilMcDreamy\_42
- Track 6 : Calamitous\_45, Allegro\_45, MasterPo\_45, Faze9\_44, Lephleur\_45, ItsyBitsy1\_45, Kaleb\_45, FrenchFry\_45, LilSmirk\_45, Bananafish\_45, TA17A\_46, West99\_45, Coffee\_45, Phantasmagoria\_45, Blocker23\_45, Kheth\_45, Tres\_45, Holeinone\_45, Hedgerow\_45, LizLemon\_45, Kolhan\_45, Rhinoforte\_45, Godines\_45, Ares\_45, PrinceCharming\_45, Brownie5\_45, Boyle\_45, Eaglehorse\_45, Arbiter\_44, Rosebush\_44, Sabella\_44, Tinciduntolum\_46, Opia\_45, Glass\_45
- Track 7 : Lars\_45
- Track 8 : Vic9\_00044, Laurie\_44
- Track 9 : Akoma\_44
- Track 10 : Reprobate\_45, Phelemich\_44
- Track 11 : SirJeffery\_45, EastView9101\_43, Suigeneris\_45, Donny\_45, Rita130\_45, Acadian\_45
- Track 12 : Nehemiah\_44, Mysterious\_46
- Track 13 : Nangang\_44, Shenyu\_44, DigitDog\_44
- Track 14 : StinkyVeggy\_46, KarasumaRum\_46
- Track 15 : Serendipitous\_44
- Track 16 : Rich\_43, Bae\_44
- Track 17 : Hosp\_036
- Track 18 : KayaCho\_38
- Track 19 : ForDig\_39
- Track 20 : 40BC\_038, 39HC\_038
- Track 21 : Jolie1\_038
- Track 22 : Saguaro\_46
- Track 23 : Thonko\_44
- Track 24 : Funsized\_47
- Track 25 : Knocker\_46
- Track 26 : Rinkes\_45
- Track 27 : CherryTomatoes\_186
- Track 28 : SCentae\_183, Pupper\_184
- Track 29 : Skog\_16
- Track 30 : Ligma\_39, Fresco\_39, Axumite\_39, Shatter\_39
- Track 31 : LittleMunchkin\_41
- Track 32 : BobRoss2024\_38
- Track 33 : Yeshua\_41, Wooper\_41
- Track 34 : Coldpizza\_42
- Track 35 : AksarBAT\_39
- Track 36 : CaiB\_41
- Track 37 : AnClar\_40, Sisko\_39, Yago84\_39
- Track 38 : CloverMinnie\_41
- Track 39 : BiggityBass\_39
- Track 40 : MossRose\_41, MakoManhole\_41, AnarQue\_41
- Track 41 : CharlottesWeb\_39
- Track 42 : NHagos\_39
- Track 43 : Sour\_44
- Track 44 : Evaa\_39
- Track 45 : Mariokart\_39

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

The start number called the most often in the published annotations is 9, it was called in 188 of the 263 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AbsoluteMadLad\_45, AltPhacts\_46, Altwerkus\_45, Anderson\_46, AngelCake\_45, Banjo\_45, BatteryCK\_45, Beaglebox\_45, Bishoperium\_45, BlueHusk\_46, Bluephacebaby\_45, Boehler\_46, Brilliant\_46, Buckeye\_46, Burr\_45, CamL\_46, Cannibal\_46, Carthage\_44, Caspiboi\_47, Charles1\_46, CharlieGBrown\_45, CheetO\_46, Cher\_45, Childish\_45, Chorkpop\_46, Cobra\_46, Cornbread\_46, Cosmolli16\_45, Crownjwl\_46, DaddyDaniels\_46, Daffy\_46, DelRivs\_45, Derpp\_45, Dice\_45, Dingo\_46, Dione\_45, DirtJuice\_46, Doddsville\_46, DoesntMatter\_45, Duggie\_45, EmpTee\_46, Etaye\_46, Fozzie\_45, Frankicide\_46, Freya\_45, FriarPreacher\_45, FugateOSU\_45, GeneCoco\_46, Giraffe\_46, Gophee\_46, Grand2040\_45, Gwennie1\_46, Gyarad\_0046, HSavage\_46, Haimas\_46, Haleema\_45, Hamish\_46, Hartsy\_46, Held\_46, HenryJackson\_45, Hertubise\_46, Hetaeria\_46, Hocus\_45, Horchata\_46, Inverness\_46, Iridessa\_47, Iridoclysis\_46, JakeO\_45, JangoPhett\_46, Jesabah\_46, Jillium\_45, Jiminy\_45, Jiraiya\_45, KLucky39\_46, Kahve\_45, Kailash\_46, Khan1\_46, Kimbrough\_46, KingTut\_37, KingVeVeVe\_46, KlimbOn\_46, Kloppinator\_46, Kwadwo\_45, Kwksand96\_45, Labeouficaum\_45, Lasso\_46, LeeLot\_46, LeiMonet\_47, LemonSlice\_46, Longacauda\_45, LostAndPhound\_45, LuckyMarjie\_45, Lulwa\_46, Lumine\_45, MRabcd\_45, Mag7\_45, Magic8\_46, Mana\_45, Maru\_45, Matalotodo\_46, Mcshane\_45, Mecca\_45, Megamind20\_46, Melc17\_46, Mesh1\_46, Mesmerelda\_47, MichaelPhcott\_45, Mikota\_46, MiniBoss\_46, MitKao\_46, Morgushi\_46, MrPhizzler\_45, Murdoc\_46, Nathan\_47, Newman\_46, Nicole21\_46, Numberten\_46, Nyala\_45, Olak\_45, Oline\_45, Olive\_46, OliverWalter\_46, Omniscient\_46, Oosterbaan\_46, Orfeu\_45, Orwigg\_45, Pacifista\_45, Phareon\_46, PhatLouie\_46, PhenghisKhan\_45, Phergie\_45, Phipps\_46, Phleuron\_45, PhrankReynolds\_44, Phunky\_46, Piglet\_0045, PinheadLarry\_46, Pinkman\_45, Pipsqueak\_46, Placalicious\_45, Plata\_46, Plmatters\_46, Podrick\_46, Pops\_46, Potter\_45, ProfessorX\_46, Puhltonio\_46, QueenBeane\_46, Quisquiliae\_46, Ricotta\_45, Riggan\_46, Rimu\_48, Riverton\_45, Roliet\_46, Roscoe\_47, SDcharge11\_46, Samaymay\_46, SassyCat97\_45, Schadenfreude\_45, Schueller\_45, Scrick\_46, Selr12\_46, Serendipity\_46, Serpentine\_0046, Sheila\_46, ShiVal\_46, SilverBell\_46, Simielle\_45, Skippy\_46, Slatt\_46, Solosis\_45, Sophia\_45, Soto\_46, Spartan300\_46, Squid\_46, Squiggle\_46, Struggle\_45, Surely\_46, Swiphy\_48, TallGrassMM\_46, Telesworld\_45, Thora\_46, Thunderbird\_45, Timmi\_45, TomBombadil\_46, Tomlarah\_46, Toni\_45, True\_45, TyrionL\_45, UAch1\_46, Vaishali24\_45, Valjean\_46, Vaticameos\_42, Veritas\_45, Virapocalypse\_46, Vista\_46, Vivaldi\_46, Vortex\_46, Wallhey\_45, Waterdiva\_46, Weher20\_46, Xavier\_45, YouGoGlencoco\_46, Zaider\_47, Zelda\_46,

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

- 

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

- 39HC\_038, 40BC\_038, Acadian\_45, Akoma\_44, AksarBAT\_39, Allegro\_45, AnClar\_40, AnarQue\_41, Arbiter\_44, Ares\_45, Axumite\_39, Bae\_44, Bananafish\_45, BiggityBass\_39, Blocker23\_45, BobRoss2024\_38, Boyle\_45, Brownie5\_45, CaiB\_41, Calamitous\_45, Causa\_61, CharlottesWeb\_39, CherryTomatoes\_186, CloverMinnie\_41, Coffee\_45, Coldpizza\_42, DigitDog\_44, Donny\_45, Eaglehorse\_45, EastView9101\_43, Evaa\_39, Faze9\_44, ForDig\_39,

FrenchFry\_45, Fresco\_39, Funsized\_47, Glass\_45, Godines\_45, Hedgerow\_45, Holeinone\_45, Hosp\_036, Indlovu\_43, ItsyBitsy1\_45, Jolie1\_038, Kaleb\_45, KarasumaRum\_46, KayaCho\_38, Kheth\_45, Knocker\_46, Kolhan\_45, Lars\_45, Laurie\_44, Lephleur\_45, Ligma\_39, LilMcDreamy\_42, LilSmirk\_45, LittleMunchkin\_41, LizLemon\_45, MakoManhole\_41, Mariokart\_39, MasterPo\_45, MossRose\_41, Mysterious\_46, NHagos\_39, Nangang\_44, Nehemiah\_44, Opia\_45, Phantasmagoria\_45, Phelemich\_44, PrinceCharming\_45, Pupper\_184, Reprobate\_45, Rhinoforte\_45, Rich\_43, Rinkes\_45, Rita130\_45, Rosebush\_44, SCentae\_183, Sabella\_44, Saguaro\_46, Serendipitous\_44, Shatter\_39, Shenyu\_44, SirJeffery\_45, Sisko\_39, Skog\_16, Sour\_44, StAugustine\_57, StinkyVeggy\_46, Suigeneris\_45, TA17A\_46, Thonko\_44, Tinciduntolum\_46, Tres\_45, Vic9\_00044, West99\_45, Wooper\_41, Yago84\_39, Yeshua\_41,

### Summary by start number:

Start 9:

- Found in 205 of 304 ( 67.4% ) of genes in pham
- Manual Annotations of this start: 188 of 263
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AbsoluteMadLad\_45 (B1), AltPhacts\_46 (B1), Altwerkus\_45 (B1), Anderson\_46 (B1), AngelCake\_45 (B1), Banjo\_45 (B1), BatteryCK\_45 (B1), Beaglebox\_45 (B1), Bishoperium\_45 (B1), BlueHusk\_46 (B1), Bluephacebaby\_45 (B1), Boehler\_46 (B1), Brilliant\_46 (B1), Buckeye\_46 (B1), Burr\_45 (B1), CamL\_46 (B1), Cannibal\_46 (B1), Carthage\_44 (B1), Caspiboi\_47 (B1), Charles1\_46 (B1), CharlieGBrown\_45 (B1), CheetO\_46 (B1), Cher\_45 (B1), Childish\_45 (B1), Chorkpop\_46 (B1), Cobra\_46 (B1), Cornbread\_46 (B1), Cosmolli16\_45 (B1), Crownjwl\_46 (B1), DaddyDaniels\_46 (B1), Daffy\_46 (B1), DelRivs\_45 (B1), Derpp\_45 (B1), Dice\_45 (B1), Dingo\_46 (B1), Dione\_45 (B1), DirtJuice\_46 (B1), Doddsville\_46 (B1), DoesntMatter\_45 (B1), Duggie\_45 (B1), EmpTee\_46 (B1), Etaye\_46 (B1), Fozzie\_45 (B1), Frankicide\_46 (B1), Freya\_45 (B1), FriarPreacher\_45 (B1), FugateOSU\_45 (B1), GeneCoco\_46 (B1), Giraffe\_46 (B1), Gophee\_46 (B1), Grand2040\_45 (B1), Gwennie1\_46 (B1), Gyarad\_0046 (B1), HSavage\_46 (B1), Haimas\_46 (B1), Haleema\_45 (B1), Hamish\_46 (B1), Hartsy\_46 (B1), Held\_46 (B1), HenryJackson\_45 (B1), Hertubise\_46 (B1), Hetaeria\_46 (B1), Hocus\_45 (B1), Horchata\_46 (B1), Inverness\_46 (B1), Iridessa\_47 (B1), Iridoclysis\_46 (B1), JakeO\_45 (B1), JangoPhett\_46 (B1), Jesabah\_46 (B1), Jillium\_45 (B1), Jiminy\_45 (B1), Jiraiya\_45 (B1), KLUcky39\_46 (B1), Kahve\_45 (B1), Kailash\_46 (B1), Khan1\_46 (B1), Kimbrough\_46 (B1), KingTut\_37 (B1), KingVeVeVe\_46 (B1), KlimbOn\_46 (B1), Kloppinator\_46 (B1), Kwadwo\_45 (B1), Kwksand96\_45 (B1), Labeouficaum\_45 (B1), Lasso\_46 (B1), LeeLot\_46 (B1), LeiMonet\_47 (B1), LemonSlice\_46 (B1), Longacauda\_45 (B1), LostAndPhound\_45 (B1), LuckyMarjie\_45 (B1), Lulwa\_46 (B1), Lumine\_45 (B1), MRabcd\_45 (B1), Mag7\_45 (B1), Magic8\_46 (B1), Mana\_45 (B1), Maru\_45 (B1), Matalotodo\_46 (B1), Mcshane\_45 (B1), Mecca\_45 (B1), Megamind20\_46 (B1), Melc17\_46 (B1), Mesh1\_46 (B1), Mesmerelda\_47 (B1), MichaelPhcott\_45 (B1), Mikota\_46 (B1), MiniBoss\_46 (B1), MitKao\_46 (B1), Morgushi\_46 (B1), MrPhizzler\_45 (B1), Murdoc\_46 (B1), Nathan\_47 (B1), Newman\_46 (B1), Nicole21\_46 (B1), Numberten\_46 (B1), Nyala\_45 (B1), Olak\_45 (B1), Oline\_45 (B1), Olive\_46 (B1), OliverWalter\_46 (B1), Omniscient\_46 (B1), Oosterbaan\_46 (B1), Orfeu\_45 (B1), Orwigg\_45 (B1), Pacifista\_45 (B1), Phareon\_46 (B1), PhatLouie\_46 (B1), PhenghisKhan\_45 (B1), Phergie\_45 (B1), Phipps\_46 (B1), Phleuron\_45 (B1), PhrankReynolds\_44 (B1), Phunky\_46 (B1), Piglet\_0045 (B1), PinheadLarry\_46 (B1), Pinkman\_45 (B1), Pipsqueak\_46 (B1), Placalicious\_45 (B1), Plata\_46 (B1),

Plmatters\_46 (B1), Podrick\_46 (B1), Pops\_46 (B1), Potter\_45 (B1), ProfessorX\_46 (B1), Puhltonio\_46 (B1), QueenBeane\_46 (B1), Quisquiliae\_46 (B1), Ricotta\_45 (B1), Riggan\_46 (B1), Rimu\_48 (B1), Riverton\_45 (B1), Roliet\_46 (B1), Roscoe\_47 (B1), SDcharge11\_46 (B1), Samaymay\_46 (B1), SassyCat97\_45 (B1), Schadenfreude\_45 (B1), Schueller\_45 (B1), Scrick\_46 (B1), Selr12\_46 (B1), Serendipity\_46 (B1), Serpentine\_0046 (B1), Sheila\_46 (B1), ShiVal\_46 (B1), SilverBell\_46 (B1), Simielle\_45 (B1), Skippy\_46 (B1), Slatt\_46 (B1), Solosis\_45 (B1), Sophia\_45 (B1), Soto\_46 (B1), Spartan300\_46 (B1), Squid\_46 (B1), Squiggle\_46 (B1), Struggle\_45 (B1), Surely\_46 (B1), Swiphy\_48 (B1), TallGrassMM\_46 (B1), Telesworld\_45 (B1), Thora\_46 (B1), Thunderbird\_45 (B1), Timmi\_45 (B1), TomBombadil\_46 (B1), Tomlarah\_46 (B1), Toni\_45 (B1), True\_45 (B1), TyrionL\_45 (B1), UAch1\_46 (B1), Vaishali24\_45 (B1), Valjean\_46 (B1), Vaticameos\_42 (B1), Veritas\_45 (B1), Virapocalypse\_46 (B1), Vista\_46 (B1), Vivaldi\_46 (B1), Vortex\_46 (B1), Wallhey\_45 (B1), Waterdiva\_46 (B1), Weher20\_46 (B1), Xavier\_45 (B1), YouGoGlencoco\_46 (B1), Zaider\_47 (B1), Zelda\_46 (B1),

#### Start 19:

- Found in 1 of 304 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 263
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Akoma\_44 (B3),

#### Start 20:

- Found in 5 of 304 ( 1.6% ) of genes in pham
- Manual Annotations of this start: 1 of 263
- Called 20.0% of time when present
- Phage (with cluster) where this start called: CloverMinnie\_41 (DR),

#### Start 22:

- Found in 6 of 304 ( 2.0% ) of genes in pham
- Manual Annotations of this start: 1 of 263
- Called 100.0% of time when present
- Phage (with cluster) where this start called: 39HC\_038 (B6), 40BC\_038 (B6), ForDig\_39 (B6), Hosp\_036 (B6), Jolie1\_038 (B6), KayaCho\_38 (B6),

#### Start 24:

- Found in 10 of 304 ( 3.3% ) of genes in pham
- Manual Annotations of this start: 10 of 263
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AnClar\_40 (DR), Axumite\_39 (DR), BiggityBass\_39 (DR), Fresco\_39 (DR), Ligma\_39 (DR), LittleMunchkin\_41 (DR), Mariokart\_39 (DR), Shatter\_39 (DR), Sisko\_39 (DR), Yago84\_39 (DR),

#### Start 25:

- Found in 38 of 304 ( 12.5% ) of genes in pham
- Manual Annotations of this start: 33 of 263
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Allegro\_45 (B2), Arbiter\_44 (B2), Ares\_45 (B2), Bananafish\_45 (B2), Blocker23\_45 (B2), Boyle\_45 (B2), Brownie5\_45 (B2), Calamitous\_45 (B2), CharlottesWeb\_39 (DR), Coffee\_45 (B2), Eaglehorse\_45 (B2), Faze9\_44 (B2), FrenchFry\_45 (B2), Glass\_45 (B2), Godines\_45 (B2), Hedgerow\_45 (B2), Holeinone\_45 (B2), ItsyBitsy1\_45 (B2), Kaleb\_45 (B2), Kheth\_45 (B2), Kolhan\_45 (B2), Lars\_45 (B2), Laurie\_44 (B2), Lephleur\_45 (B2), LilSmirk\_45

(B2), LizLemon\_45 (B2), MasterPo\_45 (B2), Opia\_45 (B2), Phantasmagoria\_45 (B2), PrinceCharming\_45 (B2), Rhinoforte\_45 (B2), Rosebush\_44 (B2), Sabella\_44 (B2), TA17A\_46 (B2), Tinciduntolum\_46 (B2), Tres\_45 (B2), Vic9\_00044 (B2), West99\_45 (B2),

Start 26:

- Found in 1 of 304 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 263
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Indlovu\_43 (B11),

Start 27:

- Found in 1 of 304 ( 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: BobRoss2024\_38 (DR),

Start 28:

- Found in 4 of 304 ( 1.3% ) of genes in pham
- Manual Annotations of this start: 2 of 263
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Causa\_61 (AI), Coldpizza\_42 (DR), Evaa\_39 (DR), StAugustine\_57 (AI),

Start 29:

- Found in 1 of 304 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 263
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Sour\_44 (DR),

Start 30:

- Found in 1 of 304 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 263
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Funsized\_47 (B9),

Start 31:

- Found in 21 of 304 ( 6.9% ) of genes in pham
- Manual Annotations of this start: 12 of 263
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Acadian\_45 (B5), Bae\_44 (B5), DigitDog\_44 (B5), Donny\_45 (B5), EastView9101\_43 (B5), KarasumaRum\_46 (B5), LilMcDreamy\_42 (B12), Mysterious\_46 (B5), Nangang\_44 (B5), Nehemiah\_44 (B5), Phelemich\_44 (B5), Reprobate\_45 (B5), Rich\_43 (B5), Rita130\_45 (B5), Saguaro\_46 (B7), Serendipitous\_44 (B5), Shenyu\_44 (B5), SirJeffery\_45 (B5), StinkyVeggy\_46 (B5), Suigeneris\_45 (B5), Thonko\_44 (B8),

Start 32:

- Found in 2 of 304 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 263
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AksarBAT\_39 (DR), NHagos\_39 (DR),

Start 33:

- Found in 7 of 304 ( 2.3% ) of genes in pham
- Manual Annotations of this start: 5 of 263
- Called 85.7% of time when present
- Phage (with cluster) where this start called: AnarQue\_41 (DR), CaiB\_41 (DR), MakoManhole\_41 (DR), MossRose\_41 (DR), Wooper\_41 (DR), Yeshua\_41 (DR),

Start 34:

- Found in 2 of 304 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 2 of 263
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Knocker\_46 (B9), Rinkes\_45 (B9),

Start 35:

- Found in 4 of 304 ( 1.3% ) of genes in pham
- Manual Annotations of this start: 4 of 263
- Called 100.0% of time when present
- Phage (with cluster) where this start called: CherryTomatoes\_186 (DO), Pupper\_184 (DO), SCentae\_183 (DO), Skog\_16 (DO),

**Summary by clusters:**

There are 13 clusters represented in this pham: DO, AI, B8, B3, B5, B6, B7, B12, B1, B2, B11, DR, B9,

Info for manual annotations of cluster AI:

- Start number 28 was manually annotated 1 time for cluster AI.

Info for manual annotations of cluster B1:

- Start number 9 was manually annotated 188 times for cluster B1.

Info for manual annotations of cluster B11:

- Start number 26 was manually annotated 1 time for cluster B11.

Info for manual annotations of cluster B12:

- Start number 31 was manually annotated 1 time for cluster B12.

Info for manual annotations of cluster B2:

- Start number 25 was manually annotated 33 times for cluster B2.

Info for manual annotations of cluster B3:

- Start number 19 was manually annotated 1 time for cluster B3.

Info for manual annotations of cluster B5:

- Start number 31 was manually annotated 9 times for cluster B5.

Info for manual annotations of cluster B6:

- Start number 22 was manually annotated 1 time for cluster B6.

Info for manual annotations of cluster B7:

- Start number 31 was manually annotated 1 time for cluster B7.

Info for manual annotations of cluster B8:



- Start number 31 was manually annotated 1 time for cluster B8.

Info for manual annotations of cluster B9:

- Start number 30 was manually annotated 1 time for cluster B9.
- Start number 34 was manually annotated 2 times for cluster B9.

Info for manual annotations of cluster DO:

- Start number 35 was manually annotated 4 times for cluster DO.

Info for manual annotations of cluster DR:

- Start number 20 was manually annotated 1 time for cluster DR.
- Start number 24 was manually annotated 10 times for cluster DR.
- Start number 28 was manually annotated 1 time for cluster DR.
- Start number 29 was manually annotated 1 time for cluster DR.
- Start number 32 was manually annotated 1 time for cluster DR.
- Start number 33 was manually annotated 5 times for cluster DR.

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

Gene: 39HC\_038 Start: 37421, Stop: 36984, Start Num: 22

Candidate Starts for 39HC\_038:

(7, 37574), (8, 37565), (12, 37511), (Start: 22 @37421 has 1 MA's), (36, 37355), (43, 37295), (55, 37208), (58, 37196), (59, 37175), (80, 37076),

Gene: 40BC\_038 Start: 37421, Stop: 36984, Start Num: 22

Candidate Starts for 40BC\_038:

(7, 37574), (8, 37565), (12, 37511), (Start: 22 @37421 has 1 MA's), (36, 37355), (43, 37295), (55, 37208), (58, 37196), (59, 37175), (80, 37076),

Gene: AbsoluteMadLad\_45 Start: 39726, Stop: 39196, Start Num: 9

Candidate Starts for AbsoluteMadLad\_45:

(Start: 9 @39726 has 188 MA's), (21, 39621), (38, 39543), (39, 39528), (47, 39483),

Gene: Acadian\_45 Start: 40034, Stop: 39648, Start Num: 31

Candidate Starts for Acadian\_45:

(10, 40172), (Start: 31 @40034 has 12 MA's), (36, 40013), (40, 39974), (43, 39953), (51, 39893), (55, 39866), (74, 39779), (80, 39743), (85, 39725), (92, 39689), (95, 39668),

Gene: Akoma\_44 Start: 39465, Stop: 39028, Start Num: 19

Candidate Starts for Akoma\_44:

(1, 39684), (8, 39582), (12, 39528), (15, 39513), (Start: 19 @39465 has 1 MA's), (37, 39375), (43, 39330), (44, 39324), (46, 39318), (52, 39267), (64, 39180), (71, 39156), (80, 39108),

Gene: AksarBAT\_39 Start: 33818, Stop: 33444, Start Num: 32

Candidate Starts for AksarBAT\_39:

(Start: 32 @33818 has 1 MA's), (43, 33737), (47, 33719), (55, 33650), (67, 33581), (80, 33530), (85, 33512),

Gene: Allegro\_45 Start: 39852, Stop: 39463, Start Num: 25

Candidate Starts for Allegro\_45:

(Start: 25 @39852 has 33 MA's), (38, 39795), (43, 39753), (47, 39732), (52, 39687), (54, 39672), (55, 39663), (58, 39651), (59, 39630), (73, 39567), (76, 39561), (80, 39525), (81, 39522), (91, 39483),

Gene: AltPhacts\_46 Start: 39698, Stop: 39174, Start Num: 9

Candidate Starts for AltPhacts\_46:

(Start: 9 @39698 has 188 MA's), (21, 39599), (38, 39521), (39, 39506), (47, 39461),

Gene: Altwerkus\_45 Start: 39405, Stop: 38875, Start Num: 9

Candidate Starts for Altwerkus\_45:

(Start: 9 @39405 has 188 MA's), (21, 39300), (38, 39222), (39, 39207), (47, 39162),

Gene: AnClar\_40 Start: 36039, Stop: 35620, Start Num: 24

Candidate Starts for AnClar\_40:

(Start: 24 @36039 has 10 MA's), (43, 35922), (47, 35904), (82, 35703), (88, 35667), (90, 35661),

Gene: AnarQue\_41 Start: 35226, Stop: 34840, Start Num: 33

Candidate Starts for AnarQue\_41:

(Start: 20 @35280 has 1 MA's), (Start: 33 @35226 has 5 MA's), (40, 35166), (42, 35151), (53, 35058), (55, 35046), (59, 35013), (72, 34965), (77, 34956),

Gene: Anderson\_46 Start: 39704, Stop: 39180, Start Num: 9

Candidate Starts for Anderson\_46:

(Start: 9 @39704 has 188 MA's), (21, 39605), (38, 39527), (39, 39512), (47, 39467),

Gene: AngelCake\_45 Start: 39726, Stop: 39199, Start Num: 9

Candidate Starts for AngelCake\_45:

(Start: 9 @39726 has 188 MA's), (21, 39624), (38, 39546), (39, 39531), (47, 39486),

Gene: Arbiter\_44 Start: 39938, Stop: 39549, Start Num: 25

Candidate Starts for Arbiter\_44:

(Start: 25 @39938 has 33 MA's), (38, 39881), (43, 39839), (47, 39818), (52, 39773), (54, 39758), (55, 39749), (58, 39737), (59, 39716), (73, 39653), (76, 39647), (80, 39611), (81, 39608), (91, 39569),

Gene: Ares\_45 Start: 39922, Stop: 39533, Start Num: 25

Candidate Starts for Ares\_45:

(Start: 25 @39922 has 33 MA's), (38, 39865), (43, 39823), (47, 39802), (52, 39757), (54, 39742), (55, 39733), (58, 39721), (59, 39700), (73, 39637), (76, 39631), (80, 39595), (81, 39592), (91, 39553),

Gene: Axumite\_39 Start: 33273, Stop: 32851, Start Num: 24

Candidate Starts for Axumite\_39:

(Start: 24 @33273 has 10 MA's), (43, 33156), (47, 33138), (53, 33081), (67, 32994), (72, 32979), (82, 32934), (90, 32892),

Gene: Bae\_44 Start: 39937, Stop: 39551, Start Num: 31

Candidate Starts for Bae\_44:

(Start: 31 @39937 has 12 MA's), (36, 39916), (40, 39877), (43, 39856), (51, 39796), (55, 39769), (74, 39682), (80, 39646), (89, 39601),

Gene: Bananafish\_45 Start: 39858, Stop: 39469, Start Num: 25

Candidate Starts for Bananafish\_45:

(Start: 25 @39858 has 33 MA's), (38, 39801), (43, 39759), (47, 39738), (52, 39693), (54, 39678), (55, 39669), (58, 39657), (59, 39636), (73, 39573), (76, 39567), (80, 39531), (81, 39528), (91, 39489),

Gene: Banjo\_45 Start: 39409, Stop: 38885, Start Num: 9  
Candidate Starts for Banjo\_45:  
(Start: 9 @39409 has 188 MA's), (21, 39310), (38, 39232), (39, 39217), (47, 39172),

Gene: BatteryCK\_45 Start: 39331, Stop: 38804, Start Num: 9  
Candidate Starts for BatteryCK\_45:  
(Start: 9 @39331 has 188 MA's), (21, 39229), (38, 39151), (39, 39136), (47, 39091),

Gene: Beaglebox\_45 Start: 39430, Stop: 38906, Start Num: 9  
Candidate Starts for Beaglebox\_45:  
(Start: 9 @39430 has 188 MA's), (21, 39331), (38, 39253), (39, 39238), (47, 39193),

Gene: BiggityBass\_39 Start: 35501, Stop: 35082, Start Num: 24  
Candidate Starts for BiggityBass\_39:  
(8, 35645), (14, 35582), (Start: 24 @35501 has 10 MA's), (43, 35384), (47, 35366), (55, 35297), (81, 35168), (82, 35165), (90, 35123),

Gene: Bishoperium\_45 Start: 39418, Stop: 38894, Start Num: 9  
Candidate Starts for Bishoperium\_45:  
(Start: 9 @39418 has 188 MA's), (21, 39319), (38, 39241), (39, 39226), (47, 39181),

Gene: Blocker23\_45 Start: 39976, Stop: 39587, Start Num: 25  
Candidate Starts for Blocker23\_45:  
(Start: 25 @39976 has 33 MA's), (38, 39919), (43, 39877), (47, 39856), (52, 39811), (54, 39796), (55, 39787), (58, 39775), (59, 39754), (73, 39691), (76, 39685), (80, 39649), (81, 39646), (91, 39607),

Gene: BlueHusk\_46 Start: 39223, Stop: 38693, Start Num: 9  
Candidate Starts for BlueHusk\_46:  
(Start: 9 @39223 has 188 MA's), (21, 39118), (38, 39040), (39, 39025), (47, 38980),

Gene: Bluephacebaby\_45 Start: 39421, Stop: 38891, Start Num: 9  
Candidate Starts for Bluephacebaby\_45:  
(Start: 9 @39421 has 188 MA's), (21, 39316), (38, 39238), (39, 39223), (47, 39178),

Gene: BobRoss2024\_38 Start: 33364, Stop: 32954, Start Num: 27  
Candidate Starts for BobRoss2024\_38:  
(27, 33364), (40, 33280), (45, 33250), (49, 33208), (58, 33148), (62, 33115), (65, 33097),

Gene: Boehler\_46 Start: 39727, Stop: 39197, Start Num: 9  
Candidate Starts for Boehler\_46:  
(Start: 9 @39727 has 188 MA's), (21, 39622), (38, 39544), (39, 39529), (47, 39484),

Gene: Boyle\_45 Start: 39977, Stop: 39588, Start Num: 25  
Candidate Starts for Boyle\_45:  
(Start: 25 @39977 has 33 MA's), (38, 39920), (43, 39878), (47, 39857), (52, 39812), (54, 39797), (55, 39788), (58, 39776), (59, 39755), (73, 39692), (76, 39686), (80, 39650), (81, 39647), (91, 39608),

Gene: Brilliant\_46 Start: 39426, Stop: 38902, Start Num: 9  
Candidate Starts for Brilliant\_46:  
(Start: 9 @39426 has 188 MA's), (21, 39327), (38, 39249), (39, 39234), (47, 39189),

Gene: Brownie5\_45 Start: 39983, Stop: 39594, Start Num: 25  
Candidate Starts for Brownie5\_45:

(Start: 25 @39983 has 33 MA's), (38, 39926), (43, 39884), (47, 39863), (52, 39818), (54, 39803), (55, 39794), (58, 39782), (59, 39761), (73, 39698), (76, 39692), (80, 39656), (81, 39653), (91, 39614),

Gene: Buckeye\_46 Start: 39741, Stop: 39214, Start Num: 9

Candidate Starts for Buckeye\_46:

(Start: 9 @39741 has 188 MA's), (21, 39639), (38, 39561), (39, 39546), (47, 39501),

Gene: Burr\_45 Start: 39415, Stop: 38891, Start Num: 9

Candidate Starts for Burr\_45:

(Start: 9 @39415 has 188 MA's), (21, 39316), (38, 39238), (39, 39223), (47, 39178),

Gene: CaiB\_41 Start: 35212, Stop: 34826, Start Num: 33

Candidate Starts for CaiB\_41:

(Start: 20 @35266 has 1 MA's), (Start: 33 @35212 has 5 MA's), (38, 35173), (40, 35152), (42, 35137), (53, 35044), (55, 35032), (57, 35023), (59, 34999), (72, 34951), (77, 34942),

Gene: Calamitous\_45 Start: 39863, Stop: 39474, Start Num: 25

Candidate Starts for Calamitous\_45:

(Start: 25 @39863 has 33 MA's), (38, 39806), (43, 39764), (47, 39743), (52, 39698), (54, 39683), (55, 39674), (58, 39662), (59, 39641), (73, 39578), (76, 39572), (80, 39536), (81, 39533), (91, 39494),

Gene: CamL\_46 Start: 39716, Stop: 39192, Start Num: 9

Candidate Starts for CamL\_46:

(Start: 9 @39716 has 188 MA's), (21, 39617), (38, 39539), (39, 39524), (47, 39479),

Gene: Cannibal\_46 Start: 39699, Stop: 39175, Start Num: 9

Candidate Starts for Cannibal\_46:

(Start: 9 @39699 has 188 MA's), (21, 39600), (38, 39522), (39, 39507), (47, 39462),

Gene: Carthage\_44 Start: 38628, Stop: 38104, Start Num: 9

Candidate Starts for Carthage\_44:

(Start: 9 @38628 has 188 MA's), (21, 38529), (38, 38451), (39, 38436), (47, 38391),

Gene: Caspiboi\_47 Start: 39425, Stop: 38901, Start Num: 9

Candidate Starts for Caspiboi\_47:

(Start: 9 @39425 has 188 MA's), (21, 39326), (38, 39248), (39, 39233), (47, 39188),

Gene: Causa\_61 Start: 48193, Stop: 47834, Start Num: 28

Candidate Starts for Causa\_61:

(11, 48304), (13, 48289), (16, 48259), (Start: 28 @48193 has 2 MA's), (43, 48100), (57, 48004), (62, 47968), (80, 47902), (85, 47884), (86, 47881),

Gene: Charles1\_46 Start: 39701, Stop: 39177, Start Num: 9

Candidate Starts for Charles1\_46:

(Start: 9 @39701 has 188 MA's), (21, 39602), (38, 39524), (39, 39509), (47, 39464),

Gene: CharlieGBrown\_45 Start: 39291, Stop: 38767, Start Num: 9

Candidate Starts for CharlieGBrown\_45:

(Start: 9 @39291 has 188 MA's), (21, 39192), (38, 39114), (39, 39099), (47, 39054),

Gene: CharlottesWeb\_39 Start: 33161, Stop: 32775, Start Num: 25

Candidate Starts for CharlottesWeb\_39:

(Start: 25 @33161 has 33 MA's), (46, 33047), (47, 33041), (55, 32972), (57, 32963), (72, 32888), (82, 32843), (85, 32831),

Gene: CheetO\_46 Start: 39721, Stop: 39191, Start Num: 9

Candidate Starts for CheetO\_46:

(Start: 9 @39721 has 188 MA's), (21, 39616), (38, 39538), (39, 39523), (47, 39478),

Gene: Cher\_45 Start: 39438, Stop: 38914, Start Num: 9

Candidate Starts for Cher\_45:

(Start: 9 @39438 has 188 MA's), (21, 39339), (38, 39261), (39, 39246), (47, 39201),

Gene: CherryTomatoes\_186 Start: 132867, Stop: 133241, Start Num: 35

Candidate Starts for CherryTomatoes\_186:

(Start: 35 @132867 has 4 MA's), (40, 132921), (50, 132984), (52, 133005), (79, 133146), (96, 133230),

Gene: Childish\_45 Start: 39441, Stop: 38917, Start Num: 9

Candidate Starts for Childish\_45:

(Start: 9 @39441 has 188 MA's), (21, 39342), (38, 39264), (39, 39249), (47, 39204),

Gene: Chorkpop\_46 Start: 39437, Stop: 38913, Start Num: 9

Candidate Starts for Chorkpop\_46:

(Start: 9 @39437 has 188 MA's), (21, 39338), (38, 39260), (39, 39245), (47, 39200),

Gene: CloverMinnie\_41 Start: 35206, Stop: 34766, Start Num: 20

Candidate Starts for CloverMinnie\_41:

(Start: 20 @35206 has 1 MA's), (Start: 33 @35152 has 5 MA's), (40, 35092), (42, 35077), (53, 34984), (55, 34972), (59, 34939), (72, 34891), (77, 34882),

Gene: Cobra\_46 Start: 39722, Stop: 39198, Start Num: 9

Candidate Starts for Cobra\_46:

(Start: 9 @39722 has 188 MA's), (21, 39623), (38, 39545), (39, 39530), (47, 39485),

Gene: Coffee\_45 Start: 39966, Stop: 39577, Start Num: 25

Candidate Starts for Coffee\_45:

(Start: 25 @39966 has 33 MA's), (38, 39909), (43, 39867), (47, 39846), (52, 39801), (54, 39786), (55, 39777), (58, 39765), (59, 39744), (73, 39681), (76, 39675), (80, 39639), (81, 39636), (91, 39597),

Gene: Coldpizza\_42 Start: 37983, Stop: 37594, Start Num: 28

Candidate Starts for Coldpizza\_42:

(Start: 28 @37983 has 2 MA's), (42, 37899), (43, 37893), (47, 37875), (57, 37797), (80, 37686),

Gene: Cornbread\_46 Start: 39438, Stop: 38914, Start Num: 9

Candidate Starts for Cornbread\_46:

(Start: 9 @39438 has 188 MA's), (21, 39339), (38, 39261), (39, 39246), (47, 39201),

Gene: Cosmolli16\_45 Start: 39429, Stop: 38902, Start Num: 9

Candidate Starts for Cosmolli16\_45:

(Start: 9 @39429 has 188 MA's), (21, 39327), (38, 39249), (39, 39234), (47, 39189),

Gene: Crownjwl\_46 Start: 39498, Stop: 38968, Start Num: 9

Candidate Starts for Crownjwl\_46:

(Start: 9 @39498 has 188 MA's), (21, 39393), (38, 39315), (39, 39300), (47, 39255),

Gene: DaddyDaniels\_46 Start: 39410, Stop: 38886, Start Num: 9  
Candidate Starts for DaddyDaniels\_46:  
(Start: 9 @39410 has 188 MA's), (21, 39311), (38, 39233), (39, 39218), (47, 39173),

Gene: Daffy\_46 Start: 39441, Stop: 38917, Start Num: 9  
Candidate Starts for Daffy\_46:  
(Start: 9 @39441 has 188 MA's), (21, 39342), (38, 39264), (39, 39249), (47, 39204),

Gene: DelRivs\_45 Start: 39442, Stop: 38912, Start Num: 9  
Candidate Starts for DelRivs\_45:  
(Start: 9 @39442 has 188 MA's), (21, 39337), (38, 39259), (39, 39244), (47, 39199),

Gene: Derpp\_45 Start: 39280, Stop: 38756, Start Num: 9  
Candidate Starts for Derpp\_45:  
(Start: 9 @39280 has 188 MA's), (21, 39181), (38, 39103), (39, 39088), (47, 39043),

Gene: Dice\_45 Start: 39412, Stop: 38891, Start Num: 9  
Candidate Starts for Dice\_45:  
(Start: 9 @39412 has 188 MA's), (21, 39316), (38, 39238), (39, 39223), (47, 39178),

Gene: DigitDog\_44 Start: 39734, Stop: 39348, Start Num: 31  
Candidate Starts for DigitDog\_44:  
(Start: 31 @39734 has 12 MA's), (36, 39713), (40, 39674), (43, 39653), (51, 39593), (54, 39575), (55, 39566), (74, 39479), (80, 39443), (85, 39425), (92, 39389),

Gene: Dingo\_46 Start: 39704, Stop: 39174, Start Num: 9  
Candidate Starts for Dingo\_46:  
(Start: 9 @39704 has 188 MA's), (21, 39599), (38, 39521), (39, 39506), (47, 39461),

Gene: Dione\_45 Start: 39420, Stop: 38896, Start Num: 9  
Candidate Starts for Dione\_45:  
(Start: 9 @39420 has 188 MA's), (21, 39321), (38, 39243), (39, 39228), (47, 39183),

Gene: DirtJuice\_46 Start: 39704, Stop: 39180, Start Num: 9  
Candidate Starts for DirtJuice\_46:  
(Start: 9 @39704 has 188 MA's), (21, 39605), (38, 39527), (39, 39512), (47, 39467),

Gene: Doddsville\_46 Start: 39434, Stop: 38910, Start Num: 9  
Candidate Starts for Doddsville\_46:  
(Start: 9 @39434 has 188 MA's), (21, 39335), (38, 39257), (39, 39242), (47, 39197),

Gene: DoesntMatter\_45 Start: 39707, Stop: 39183, Start Num: 9  
Candidate Starts for DoesntMatter\_45:  
(Start: 9 @39707 has 188 MA's), (21, 39608), (38, 39530), (39, 39515), (47, 39470),

Gene: Donny\_45 Start: 40039, Stop: 39653, Start Num: 31  
Candidate Starts for Donny\_45:  
(10, 40177), (Start: 31 @40039 has 12 MA's), (36, 40018), (40, 39979), (43, 39958), (51, 39898), (55, 39871), (74, 39784), (80, 39748), (85, 39730), (92, 39694), (95, 39673),

Gene: Duggie\_45 Start: 39436, Stop: 38912, Start Num: 9  
Candidate Starts for Duggie\_45:  
(Start: 9 @39436 has 188 MA's), (21, 39337), (38, 39259), (39, 39244), (47, 39199),

Gene: Eaglehorse\_45 Start: 39890, Stop: 39501, Start Num: 25

Candidate Starts for Eaglehorse\_45:

(Start: 25 @39890 has 33 MA's), (38, 39833), (43, 39791), (47, 39770), (52, 39725), (54, 39710), (55, 39701), (58, 39689), (59, 39668), (73, 39605), (76, 39599), (80, 39563), (81, 39560), (91, 39521),

Gene: EastView9101\_43 Start: 39689, Stop: 39303, Start Num: 31

Candidate Starts for EastView9101\_43:

(10, 39827), (Start: 31 @39689 has 12 MA's), (36, 39668), (40, 39629), (43, 39608), (51, 39548), (55, 39521), (74, 39434), (80, 39398), (85, 39380), (92, 39344), (95, 39323),

Gene: EmpTee\_46 Start: 39720, Stop: 39190, Start Num: 9

Candidate Starts for EmpTee\_46:

(Start: 9 @39720 has 188 MA's), (21, 39615), (38, 39537), (39, 39522), (47, 39477),

Gene: Etaye\_46 Start: 39707, Stop: 39180, Start Num: 9

Candidate Starts for Etaye\_46:

(Start: 9 @39707 has 188 MA's), (21, 39605), (38, 39527), (39, 39512), (47, 39467),

Gene: Evaa\_39 Start: 34284, Stop: 33898, Start Num: 28

Candidate Starts for Evaa\_39:

(23, 34296), (Start: 28 @34284 has 2 MA's), (43, 34194), (47, 34176), (58, 34095), (65, 34041), (68, 34029),

Gene: Faze9\_44 Start: 39986, Stop: 39597, Start Num: 25

Candidate Starts for Faze9\_44:

(Start: 25 @39986 has 33 MA's), (38, 39929), (43, 39887), (47, 39866), (52, 39821), (54, 39806), (55, 39797), (58, 39785), (59, 39764), (73, 39701), (76, 39695), (80, 39659), (81, 39656), (91, 39617),

Gene: ForDig\_39 Start: 37407, Stop: 36973, Start Num: 22

Candidate Starts for ForDig\_39:

(2, 37635), (6, 37563), (Start: 22 @37407 has 1 MA's), (40, 37302), (43, 37281), (51, 37221), (58, 37182), (62, 37149), (80, 37074), (85, 37056),

Gene: Fozzie\_45 Start: 39742, Stop: 39212, Start Num: 9

Candidate Starts for Fozzie\_45:

(Start: 9 @39742 has 188 MA's), (21, 39637), (38, 39559), (39, 39544), (47, 39499),

Gene: Frankicide\_46 Start: 39732, Stop: 39208, Start Num: 9

Candidate Starts for Frankicide\_46:

(Start: 9 @39732 has 188 MA's), (21, 39633), (38, 39555), (39, 39540), (47, 39495),

Gene: FrenchFry\_45 Start: 39980, Stop: 39591, Start Num: 25

Candidate Starts for FrenchFry\_45:

(Start: 25 @39980 has 33 MA's), (38, 39923), (43, 39881), (47, 39860), (52, 39815), (54, 39800), (55, 39791), (58, 39779), (59, 39758), (73, 39695), (76, 39689), (80, 39653), (81, 39650), (91, 39611),

Gene: Fresco\_39 Start: 33273, Stop: 32851, Start Num: 24

Candidate Starts for Fresco\_39:

(Start: 24 @33273 has 10 MA's), (43, 33156), (47, 33138), (53, 33081), (67, 32994), (72, 32979), (82, 32934), (90, 32892),

Gene: Freya\_45 Start: 39411, Stop: 38887, Start Num: 9

Candidate Starts for Freya\_45:

(Start: 9 @39411 has 188 MA's), (21, 39312), (38, 39234), (39, 39219), (47, 39174),

Gene: FriarPreacher\_45 Start: 39744, Stop: 39214, Start Num: 9

Candidate Starts for FriarPreacher\_45:

(Start: 9 @39744 has 188 MA's), (21, 39639), (38, 39561), (39, 39546), (47, 39501),

Gene: FugateOSU\_45 Start: 39419, Stop: 38892, Start Num: 9

Candidate Starts for FugateOSU\_45:

(Start: 9 @39419 has 188 MA's), (21, 39317), (38, 39239), (39, 39224), (47, 39179),

Gene: Funsized\_47 Start: 42156, Stop: 41758, Start Num: 30

Candidate Starts for Funsized\_47:

(Start: 30 @42156 has 1 MA's), (47, 42054), (53, 41997), (54, 41994), (60, 41946), (72, 41886), (85, 41829),

Gene: GeneCoco\_46 Start: 39728, Stop: 39204, Start Num: 9

Candidate Starts for GeneCoco\_46:

(Start: 9 @39728 has 188 MA's), (21, 39629), (38, 39551), (39, 39536), (47, 39491),

Gene: Giraffe\_46 Start: 39422, Stop: 38898, Start Num: 9

Candidate Starts for Giraffe\_46:

(Start: 9 @39422 has 188 MA's), (21, 39323), (38, 39245), (39, 39230), (47, 39185),

Gene: Glass\_45 Start: 39980, Stop: 39591, Start Num: 25

Candidate Starts for Glass\_45:

(Start: 25 @39980 has 33 MA's), (38, 39923), (43, 39881), (47, 39860), (52, 39815), (54, 39800), (55, 39791), (58, 39779), (59, 39758), (73, 39695), (76, 39689), (80, 39653), (81, 39650), (91, 39611),

Gene: Godines\_45 Start: 39922, Stop: 39533, Start Num: 25

Candidate Starts for Godines\_45:

(Start: 25 @39922 has 33 MA's), (38, 39865), (43, 39823), (47, 39802), (52, 39757), (54, 39742), (55, 39733), (58, 39721), (59, 39700), (73, 39637), (76, 39631), (80, 39595), (81, 39592), (91, 39553),

Gene: Gophee\_46 Start: 39711, Stop: 39181, Start Num: 9

Candidate Starts for Gophee\_46:

(Start: 9 @39711 has 188 MA's), (21, 39606), (38, 39528), (39, 39513), (47, 39468),

Gene: Grand2040\_45 Start: 39437, Stop: 38913, Start Num: 9

Candidate Starts for Grand2040\_45:

(Start: 9 @39437 has 188 MA's), (21, 39338), (38, 39260), (39, 39245), (47, 39200),

Gene: Gwennie1\_46 Start: 39783, Stop: 39259, Start Num: 9

Candidate Starts for Gwennie1\_46:

(Start: 9 @39783 has 188 MA's), (21, 39684), (38, 39606), (39, 39591), (47, 39546),

Gene: Gyarad\_0046 Start: 39719, Stop: 39195, Start Num: 9

Candidate Starts for Gyarad\_0046:

(Start: 9 @39719 has 188 MA's), (21, 39620), (38, 39542), (39, 39527), (47, 39482),

Gene: HSavage\_46 Start: 39723, Stop: 39199, Start Num: 9

Candidate Starts for HSavage\_46:

(Start: 9 @39723 has 188 MA's), (21, 39624), (38, 39546), (39, 39531), (47, 39486),



Gene: Haimas\_46 Start: 39717, Stop: 39190, Start Num: 9

Candidate Starts for Haimas\_46:

(Start: 9 @39717 has 188 MA's), (21, 39615), (38, 39537), (39, 39522), (47, 39477),

Gene: Haleema\_45 Start: 39437, Stop: 38913, Start Num: 9

Candidate Starts for Haleema\_45:

(Start: 9 @39437 has 188 MA's), (21, 39338), (38, 39260), (39, 39245), (47, 39200),

Gene: Hamish\_46 Start: 39709, Stop: 39182, Start Num: 9

Candidate Starts for Hamish\_46:

(Start: 9 @39709 has 188 MA's), (21, 39607), (38, 39529), (39, 39514), (47, 39469),

Gene: Hartsy\_46 Start: 39760, Stop: 39233, Start Num: 9

Candidate Starts for Hartsy\_46:

(Start: 9 @39760 has 188 MA's), (21, 39658), (38, 39580), (39, 39565), (47, 39520),

Gene: Hedgerow\_45 Start: 39962, Stop: 39573, Start Num: 25

Candidate Starts for Hedgerow\_45:

(Start: 25 @39962 has 33 MA's), (38, 39905), (43, 39863), (47, 39842), (52, 39797), (54, 39782), (55, 39773), (58, 39761), (59, 39740), (73, 39677), (76, 39671), (80, 39635), (81, 39632), (91, 39593),

Gene: Held\_46 Start: 39421, Stop: 38897, Start Num: 9

Candidate Starts for Held\_46:

(Start: 9 @39421 has 188 MA's), (21, 39322), (38, 39244), (39, 39229), (47, 39184),

Gene: HenryJackson\_45 Start: 39437, Stop: 38913, Start Num: 9

Candidate Starts for HenryJackson\_45:

(Start: 9 @39437 has 188 MA's), (21, 39338), (38, 39260), (39, 39245), (47, 39200),

Gene: Hertubise\_46 Start: 39731, Stop: 39204, Start Num: 9

Candidate Starts for Hertubise\_46:

(Start: 9 @39731 has 188 MA's), (21, 39629), (38, 39551), (39, 39536), (47, 39491),

Gene: Hetaeria\_46 Start: 39733, Stop: 39206, Start Num: 9

Candidate Starts for Hetaeria\_46:

(Start: 9 @39733 has 188 MA's), (21, 39631), (38, 39553), (39, 39538), (47, 39493),

Gene: Hocus\_45 Start: 39426, Stop: 38902, Start Num: 9

Candidate Starts for Hocus\_45:

(Start: 9 @39426 has 188 MA's), (21, 39327), (38, 39249), (39, 39234), (47, 39189),

Gene: Holeinone\_45 Start: 39842, Stop: 39453, Start Num: 25

Candidate Starts for Holeinone\_45:

(Start: 25 @39842 has 33 MA's), (38, 39785), (43, 39743), (47, 39722), (52, 39677), (54, 39662), (55, 39653), (58, 39641), (59, 39620), (73, 39557), (76, 39551), (80, 39515), (81, 39512), (91, 39473),

Gene: Horchata\_46 Start: 39711, Stop: 39184, Start Num: 9

Candidate Starts for Horchata\_46:

(Start: 9 @39711 has 188 MA's), (21, 39609), (38, 39531), (39, 39516), (47, 39471),

Gene: Hosp\_036 Start: 35614, Stop: 35177, Start Num: 22

Candidate Starts for Hosp\_036:

(2, 35842), (6, 35770), (Start: 22 @35614 has 1 MA's), (36, 35548), (43, 35488), (55, 35401), (58, 35389), (59, 35368), (80, 35269),

Gene: Indlovu\_43 Start: 38910, Stop: 38503, Start Num: 26

Candidate Starts for Indlovu\_43:

(Start: 26 @38910 has 1 MA's), (40, 38835), (54, 38736), (59, 38694), (69, 38637), (80, 38589),

Gene: Inverness\_46 Start: 39720, Stop: 39196, Start Num: 9

Candidate Starts for Inverness\_46:

(Start: 9 @39720 has 188 MA's), (21, 39621), (38, 39543), (39, 39528), (47, 39483),

Gene: Iridessa\_47 Start: 39422, Stop: 38898, Start Num: 9

Candidate Starts for Iridessa\_47:

(Start: 9 @39422 has 188 MA's), (21, 39323), (38, 39245), (39, 39230), (47, 39185),

Gene: Iridoclysis\_46 Start: 39703, Stop: 39176, Start Num: 9

Candidate Starts for Iridoclysis\_46:

(Start: 9 @39703 has 188 MA's), (21, 39601), (38, 39523), (39, 39508), (47, 39463),

Gene: ItsyBitsy1\_45 Start: 39844, Stop: 39455, Start Num: 25

Candidate Starts for ItsyBitsy1\_45:

(Start: 25 @39844 has 33 MA's), (38, 39787), (43, 39745), (47, 39724), (52, 39679), (54, 39664), (55, 39655), (58, 39643), (59, 39622), (73, 39559), (76, 39553), (80, 39517), (81, 39514), (91, 39475),

Gene: JakeO\_45 Start: 39439, Stop: 38915, Start Num: 9

Candidate Starts for JakeO\_45:

(Start: 9 @39439 has 188 MA's), (21, 39340), (38, 39262), (39, 39247), (47, 39202),

Gene: JangoPhett\_46 Start: 39714, Stop: 39184, Start Num: 9

Candidate Starts for JangoPhett\_46:

(Start: 9 @39714 has 188 MA's), (21, 39609), (38, 39531), (39, 39516), (47, 39471),

Gene: Jesabah\_46 Start: 39442, Stop: 38915, Start Num: 9

Candidate Starts for Jesabah\_46:

(Start: 9 @39442 has 188 MA's), (21, 39340), (38, 39262), (39, 39247), (47, 39202),

Gene: Jillium\_45 Start: 39433, Stop: 38906, Start Num: 9

Candidate Starts for Jillium\_45:

(Start: 9 @39433 has 188 MA's), (21, 39331), (38, 39253), (39, 39238), (47, 39193),

Gene: Jiminy\_45 Start: 39274, Stop: 38750, Start Num: 9

Candidate Starts for Jiminy\_45:

(Start: 9 @39274 has 188 MA's), (21, 39175), (38, 39097), (39, 39082), (47, 39037),

Gene: Jiraiya\_45 Start: 39427, Stop: 38903, Start Num: 9

Candidate Starts for Jiraiya\_45:

(Start: 9 @39427 has 188 MA's), (21, 39328), (38, 39250), (39, 39235), (47, 39190),

Gene: Jolie1\_038 Start: 37398, Stop: 36964, Start Num: 22

Candidate Starts for Jolie1\_038:

(2, 37626), (Start: 22 @37398 has 1 MA's), (40, 37293), (43, 37272), (51, 37212), (55, 37185), (58, 37173), (62, 37140), (80, 37065), (85, 37047),

Gene: KLucky39\_46 Start: 39718, Stop: 39194, Start Num: 9  
Candidate Starts for KLucky39\_46:  
(Start: 9 @39718 has 188 MA's), (21, 39619), (38, 39541), (39, 39526), (47, 39481),

Gene: Kahve\_45 Start: 39434, Stop: 38910, Start Num: 9  
Candidate Starts for Kahve\_45:  
(Start: 9 @39434 has 188 MA's), (21, 39335), (38, 39257), (39, 39242), (47, 39197),

Gene: Kailash\_46 Start: 39775, Stop: 39248, Start Num: 9  
Candidate Starts for Kailash\_46:  
(Start: 9 @39775 has 188 MA's), (21, 39673), (38, 39595), (39, 39580), (47, 39535),

Gene: Kaleb\_45 Start: 39977, Stop: 39588, Start Num: 25  
Candidate Starts for Kaleb\_45:  
(Start: 25 @39977 has 33 MA's), (38, 39920), (43, 39878), (47, 39857), (52, 39812), (54, 39797), (55, 39788), (58, 39776), (59, 39755), (73, 39692), (76, 39686), (80, 39650), (81, 39647), (91, 39608),

Gene: KarasumaRum\_46 Start: 40176, Stop: 39790, Start Num: 31  
Candidate Starts for KarasumaRum\_46:  
(Start: 31 @40176 has 12 MA's), (36, 40155), (40, 40116), (43, 40095), (51, 40035), (54, 40017), (55, 40008), (80, 39885), (85, 39867), (92, 39831),

Gene: KayaCho\_38 Start: 37397, Stop: 36963, Start Num: 22  
Candidate Starts for KayaCho\_38:  
(Start: 22 @37397 has 1 MA's), (40, 37292), (43, 37271), (51, 37211), (55, 37184), (58, 37172), (62, 37139), (80, 37064), (85, 37046),

Gene: Khan1\_46 Start: 39455, Stop: 38931, Start Num: 9  
Candidate Starts for Khan1\_46:  
(Start: 9 @39455 has 188 MA's), (21, 39356), (38, 39278), (39, 39263), (47, 39218),

Gene: Kheth\_45 Start: 39865, Stop: 39476, Start Num: 25  
Candidate Starts for Kheth\_45:  
(Start: 25 @39865 has 33 MA's), (38, 39808), (43, 39766), (47, 39745), (52, 39700), (54, 39685), (55, 39676), (58, 39664), (59, 39643), (73, 39580), (76, 39574), (80, 39538), (81, 39535), (91, 39496),

Gene: Kimbrough\_46 Start: 39435, Stop: 38902, Start Num: 9  
Candidate Starts for Kimbrough\_46:  
(Start: 9 @39435 has 188 MA's), (21, 39327), (38, 39249), (39, 39234), (47, 39189),

Gene: KingTut\_37 Start: 35098, Stop: 34571, Start Num: 9  
Candidate Starts for KingTut\_37:  
(Start: 9 @35098 has 188 MA's), (21, 34996), (38, 34918), (39, 34903), (47, 34858),

Gene: KingVeVeVe\_46 Start: 39705, Stop: 39175, Start Num: 9  
Candidate Starts for KingVeVeVe\_46:  
(Start: 9 @39705 has 188 MA's), (21, 39600), (38, 39522), (39, 39507), (47, 39462),

Gene: KlimbOn\_46 Start: 39712, Stop: 39188, Start Num: 9  
Candidate Starts for KlimbOn\_46:  
(Start: 9 @39712 has 188 MA's), (21, 39613), (38, 39535), (39, 39520), (47, 39475),

Gene: Kloppinator\_46 Start: 39738, Stop: 39211, Start Num: 9

Candidate Starts for Kloppinator\_46:

(Start: 9 @39738 has 188 MA's), (21, 39636), (38, 39558), (39, 39543), (47, 39498),

Gene: Klocker\_46 Start: 41265, Stop: 40882, Start Num: 34

Candidate Starts for Klocker\_46:

(Start: 34 @41265 has 2 MA's), (43, 41190), (47, 41172), (48, 41157), (53, 41115), (61, 41061), (67, 41019), (70, 41013), (84, 40950), (93, 40914),

Gene: Kolhan\_45 Start: 39856, Stop: 39467, Start Num: 25

Candidate Starts for Kolhan\_45:

(Start: 25 @39856 has 33 MA's), (38, 39799), (43, 39757), (47, 39736), (52, 39691), (54, 39676), (55, 39667), (58, 39655), (59, 39634), (73, 39571), (76, 39565), (80, 39529), (81, 39526), (91, 39487),

Gene: Kwadwo\_45 Start: 39416, Stop: 38892, Start Num: 9

Candidate Starts for Kwadwo\_45:

(Start: 9 @39416 has 188 MA's), (21, 39317), (38, 39239), (39, 39224), (47, 39179),

Gene: Kwksand96\_45 Start: 39285, Stop: 38761, Start Num: 9

Candidate Starts for Kwksand96\_45:

(Start: 9 @39285 has 188 MA's), (21, 39186), (38, 39108), (39, 39093), (47, 39048),

Gene: Labeouficaum\_45 Start: 39280, Stop: 38756, Start Num: 9

Candidate Starts for Labeouficaum\_45:

(Start: 9 @39280 has 188 MA's), (21, 39181), (38, 39103), (39, 39088), (47, 39043),

Gene: Lars\_45 Start: 39967, Stop: 39578, Start Num: 25

Candidate Starts for Lars\_45:

(Start: 25 @39967 has 33 MA's), (38, 39910), (43, 39868), (47, 39847), (52, 39802), (54, 39787), (55, 39778), (58, 39766), (59, 39745), (73, 39682), (76, 39676), (80, 39640), (81, 39637), (87, 39610), (91, 39598),

Gene: Lasso\_46 Start: 39691, Stop: 39167, Start Num: 9

Candidate Starts for Lasso\_46:

(Start: 9 @39691 has 188 MA's), (21, 39592), (38, 39514), (39, 39499), (47, 39454),

Gene: Laurie\_44 Start: 39366, Stop: 38977, Start Num: 25

Candidate Starts for Laurie\_44:

(Start: 25 @39366 has 33 MA's), (38, 39309), (43, 39267), (47, 39246), (52, 39201), (54, 39186), (55, 39177), (58, 39165), (59, 39144), (73, 39081), (76, 39075), (80, 39039), (81, 39036), (85, 39021), (91, 38997),

Gene: LeeLot\_46 Start: 39722, Stop: 39198, Start Num: 9

Candidate Starts for LeeLot\_46:

(Start: 9 @39722 has 188 MA's), (21, 39623), (38, 39545), (39, 39530), (47, 39485),

Gene: LeiMonet\_47 Start: 39423, Stop: 38899, Start Num: 9

Candidate Starts for LeiMonet\_47:

(Start: 9 @39423 has 188 MA's), (21, 39324), (38, 39246), (39, 39231), (47, 39186),

Gene: LemonSlice\_46 Start: 39422, Stop: 38895, Start Num: 9

Candidate Starts for LemonSlice\_46:

(Start: 9 @39422 has 188 MA's), (21, 39320), (38, 39242), (39, 39227), (47, 39182),

Gene: Lephleur\_45 Start: 39860, Stop: 39471, Start Num: 25

Candidate Starts for Lephleur\_45:

(Start: 25 @39860 has 33 MA's), (38, 39803), (43, 39761), (47, 39740), (52, 39695), (54, 39680), (55, 39671), (58, 39659), (59, 39638), (73, 39575), (76, 39569), (80, 39533), (81, 39530), (91, 39491),

Gene: Ligma\_39 Start: 33273, Stop: 32851, Start Num: 24

Candidate Starts for Ligma\_39:

(Start: 24 @33273 has 10 MA's), (43, 33156), (47, 33138), (53, 33081), (67, 32994), (72, 32979), (82, 32934), (90, 32892),

Gene: LilMcDreamy\_42 Start: 39137, Stop: 38754, Start Num: 31

Candidate Starts for LilMcDreamy\_42:

(4, 39353), (Start: 31 @39137 has 12 MA's), (40, 39077), (43, 39056), (55, 38969), (59, 38936), (61, 38927), (85, 38831), (89, 38804),

Gene: LilSmirk\_45 Start: 39854, Stop: 39465, Start Num: 25

Candidate Starts for LilSmirk\_45:

(Start: 25 @39854 has 33 MA's), (38, 39797), (43, 39755), (47, 39734), (52, 39689), (54, 39674), (55, 39665), (58, 39653), (59, 39632), (73, 39569), (76, 39563), (80, 39527), (81, 39524), (91, 39485),

Gene: LittleMunchkin\_41 Start: 36568, Stop: 36182, Start Num: 24

Candidate Starts for LittleMunchkin\_41:

(Start: 24 @36568 has 10 MA's), (43, 36460), (47, 36442), (55, 36373), (58, 36361), (62, 36328), (82, 36247), (85, 36235),

Gene: LizLemon\_45 Start: 39976, Stop: 39587, Start Num: 25

Candidate Starts for LizLemon\_45:

(Start: 25 @39976 has 33 MA's), (38, 39919), (43, 39877), (47, 39856), (52, 39811), (54, 39796), (55, 39787), (58, 39775), (59, 39754), (73, 39691), (76, 39685), (80, 39649), (81, 39646), (91, 39607),

Gene: Longacauda\_45 Start: 39424, Stop: 38900, Start Num: 9

Candidate Starts for Longacauda\_45:

(Start: 9 @39424 has 188 MA's), (21, 39325), (38, 39247), (39, 39232), (47, 39187),

Gene: LostAndPhound\_45 Start: 39425, Stop: 38901, Start Num: 9

Candidate Starts for LostAndPhound\_45:

(Start: 9 @39425 has 188 MA's), (21, 39326), (38, 39248), (39, 39233), (47, 39188),

Gene: LuckyMarjie\_45 Start: 39431, Stop: 38910, Start Num: 9

Candidate Starts for LuckyMarjie\_45:

(Start: 9 @39431 has 188 MA's), (21, 39335), (38, 39257), (39, 39242), (47, 39197),

Gene: Lulwa\_46 Start: 39703, Stop: 39179, Start Num: 9

Candidate Starts for Lulwa\_46:

(Start: 9 @39703 has 188 MA's), (21, 39604), (38, 39526), (39, 39511), (47, 39466),

Gene: Lumine\_45 Start: 39412, Stop: 38888, Start Num: 9

Candidate Starts for Lumine\_45:

(Start: 9 @39412 has 188 MA's), (21, 39313), (38, 39235), (39, 39220), (47, 39175),

Gene: MRabcd\_45 Start: 39416, Stop: 38892, Start Num: 9

Candidate Starts for MRabcd\_45:

(Start: 9 @39416 has 188 MA's), (21, 39317), (38, 39239), (39, 39224), (47, 39179),

Gene: Mag7\_45 Start: 39325, Stop: 38798, Start Num: 9

Candidate Starts for Mag7\_45:

(Start: 9 @39325 has 188 MA's), (21, 39223), (38, 39145), (39, 39130), (47, 39085),

Gene: Magic8\_46 Start: 39760, Stop: 39233, Start Num: 9

Candidate Starts for Magic8\_46:

(Start: 9 @39760 has 188 MA's), (21, 39658), (38, 39580), (39, 39565), (47, 39520),

Gene: MakoManhole\_41 Start: 35230, Stop: 34844, Start Num: 33

Candidate Starts for MakoManhole\_41:

(Start: 20 @35284 has 1 MA's), (Start: 33 @35230 has 5 MA's), (40, 35170), (42, 35155), (53, 35062), (55, 35050), (59, 35017), (72, 34969), (77, 34960),

Gene: Mana\_45 Start: 39431, Stop: 38907, Start Num: 9

Candidate Starts for Mana\_45:

(Start: 9 @39431 has 188 MA's), (21, 39332), (38, 39254), (39, 39239), (47, 39194),

Gene: Mariokart\_39 Start: 33175, Stop: 32774, Start Num: 24

Candidate Starts for Mariokart\_39:

(Start: 24 @33175 has 10 MA's), (46, 33046), (47, 33040), (55, 32971), (57, 32962), (72, 32887), (82, 32842), (85, 32830),

Gene: Maru\_45 Start: 39374, Stop: 38850, Start Num: 9

Candidate Starts for Maru\_45:

(Start: 9 @39374 has 188 MA's), (21, 39275), (38, 39197), (39, 39182), (47, 39137),

Gene: MasterPo\_45 Start: 39863, Stop: 39474, Start Num: 25

Candidate Starts for MasterPo\_45:

(Start: 25 @39863 has 33 MA's), (38, 39806), (43, 39764), (47, 39743), (52, 39698), (54, 39683), (55, 39674), (58, 39662), (59, 39641), (73, 39578), (76, 39572), (80, 39536), (81, 39533), (91, 39494),

Gene: Matalotodo\_46 Start: 39720, Stop: 39193, Start Num: 9

Candidate Starts for Matalotodo\_46:

(Start: 9 @39720 has 188 MA's), (21, 39618), (38, 39540), (39, 39525), (47, 39480),

Gene: Mcshane\_45 Start: 39417, Stop: 38890, Start Num: 9

Candidate Starts for Mcshane\_45:

(Start: 9 @39417 has 188 MA's), (21, 39315), (38, 39237), (39, 39222), (47, 39177),

Gene: Mecca\_45 Start: 39423, Stop: 38893, Start Num: 9

Candidate Starts for Mecca\_45:

(Start: 9 @39423 has 188 MA's), (21, 39318), (38, 39240), (39, 39225), (47, 39180),

Gene: Megamind20\_46 Start: 39445, Stop: 38915, Start Num: 9

Candidate Starts for Megamind20\_46:

(Start: 9 @39445 has 188 MA's), (21, 39340), (38, 39262), (39, 39247), (47, 39202),

Gene: Melc17\_46 Start: 39715, Stop: 39188, Start Num: 9

Candidate Starts for Melc17\_46:

(Start: 9 @39715 has 188 MA's), (21, 39613), (38, 39535), (39, 39520), (47, 39475),

Gene: Mesh1\_46 Start: 39732, Stop: 39205, Start Num: 9

Candidate Starts for Mesh1\_46:

(Start: 9 @39732 has 188 MA's), (21, 39630), (38, 39552), (39, 39537), (47, 39492),

Gene: Mesmerelda\_47 Start: 39433, Stop: 38903, Start Num: 9

Candidate Starts for Mesmerelda\_47:

(Start: 9 @39433 has 188 MA's), (21, 39328), (38, 39250), (39, 39235), (47, 39190),

Gene: MichaelPhcott\_45 Start: 39322, Stop: 38795, Start Num: 9

Candidate Starts for MichaelPhcott\_45:

(Start: 9 @39322 has 188 MA's), (21, 39220), (38, 39142), (39, 39127), (47, 39082),

Gene: Mikota\_46 Start: 39702, Stop: 39178, Start Num: 9

Candidate Starts for Mikota\_46:

(Start: 9 @39702 has 188 MA's), (21, 39603), (38, 39525), (39, 39510), (47, 39465),

Gene: MiniBoss\_46 Start: 39708, Stop: 39184, Start Num: 9

Candidate Starts for MiniBoss\_46:

(Start: 9 @39708 has 188 MA's), (21, 39609), (38, 39531), (39, 39516), (47, 39471),

Gene: MitKao\_46 Start: 39423, Stop: 38899, Start Num: 9

Candidate Starts for MitKao\_46:

(Start: 9 @39423 has 188 MA's), (21, 39324), (38, 39246), (39, 39231), (47, 39186),

Gene: Morgushi\_46 Start: 39424, Stop: 38900, Start Num: 9

Candidate Starts for Morgushi\_46:

(Start: 9 @39424 has 188 MA's), (21, 39325), (38, 39247), (39, 39232), (47, 39187),

Gene: MossRose\_41 Start: 35209, Stop: 34823, Start Num: 33

Candidate Starts for MossRose\_41:

(Start: 20 @35263 has 1 MA's), (Start: 33 @35209 has 5 MA's), (40, 35149), (42, 35134), (53, 35041), (55, 35029), (59, 34996), (72, 34948), (77, 34939),

Gene: MrPhizzler\_45 Start: 39432, Stop: 38908, Start Num: 9

Candidate Starts for MrPhizzler\_45:

(Start: 9 @39432 has 188 MA's), (21, 39333), (38, 39255), (39, 39240), (47, 39195),

Gene: Murdoc\_46 Start: 39716, Stop: 39192, Start Num: 9

Candidate Starts for Murdoc\_46:

(Start: 9 @39716 has 188 MA's), (21, 39617), (38, 39539), (39, 39524), (47, 39479),

Gene: Mysterious\_46 Start: 40306, Stop: 39920, Start Num: 31

Candidate Starts for Mysterious\_46:

(Start: 31 @40306 has 12 MA's), (40, 40246), (41, 40240), (43, 40225), (54, 40147), (55, 40138), (61, 40096), (62, 40093), (74, 40051), (78, 40039), (80, 40015), (85, 39997), (92, 39961),

Gene: NHagos\_39 Start: 33821, Stop: 33447, Start Num: 32

Candidate Starts for NHagos\_39:

(Start: 32 @33821 has 1 MA's), (43, 33740), (47, 33722), (55, 33653), (67, 33584), (80, 33533), (85, 33515),

Gene: Nangang\_44 Start: 40099, Stop: 39713, Start Num: 31

Candidate Starts for Nangang\_44:

(Start: 31 @40099 has 12 MA's), (36, 40078), (40, 40039), (43, 40018), (51, 39958), (54, 39940), (55, 39931), (74, 39844), (80, 39808), (85, 39790), (92, 39754),

Gene: Nathan\_47 Start: 39754, Stop: 39230, Start Num: 9

Candidate Starts for Nathan\_47:

(Start: 9 @39754 has 188 MA's), (21, 39655), (38, 39577), (39, 39562), (47, 39517),

Gene: Nehemiah\_44 Start: 40306, Stop: 39920, Start Num: 31

Candidate Starts for Nehemiah\_44:

(Start: 31 @40306 has 12 MA's), (40, 40246), (41, 40240), (43, 40225), (54, 40147), (55, 40138), (61, 40096), (62, 40093), (74, 40051), (78, 40039), (80, 40015), (85, 39997), (92, 39961),

Gene: Newman\_46 Start: 39715, Stop: 39191, Start Num: 9

Candidate Starts for Newman\_46:

(Start: 9 @39715 has 188 MA's), (21, 39616), (38, 39538), (39, 39523), (47, 39478),

Gene: Nicole21\_46 Start: 39716, Stop: 39189, Start Num: 9

Candidate Starts for Nicole21\_46:

(Start: 9 @39716 has 188 MA's), (21, 39614), (38, 39536), (39, 39521), (47, 39476),

Gene: Numberten\_46 Start: 39722, Stop: 39198, Start Num: 9

Candidate Starts for Numberten\_46:

(Start: 9 @39722 has 188 MA's), (21, 39623), (38, 39545), (39, 39530), (47, 39485),

Gene: Nyala\_45 Start: 39421, Stop: 38891, Start Num: 9

Candidate Starts for Nyala\_45:

(Start: 9 @39421 has 188 MA's), (21, 39316), (38, 39238), (39, 39223), (47, 39178),

Gene: Olak\_45 Start: 39424, Stop: 38894, Start Num: 9

Candidate Starts for Olak\_45:

(Start: 9 @39424 has 188 MA's), (21, 39319), (38, 39241), (39, 39226), (47, 39181),

Gene: Oline\_45 Start: 39284, Stop: 38760, Start Num: 9

Candidate Starts for Oline\_45:

(Start: 9 @39284 has 188 MA's), (21, 39185), (38, 39107), (39, 39092), (47, 39047),

Gene: Olive\_46 Start: 39711, Stop: 39181, Start Num: 9

Candidate Starts for Olive\_46:

(Start: 9 @39711 has 188 MA's), (21, 39606), (38, 39528), (39, 39513), (47, 39468),

Gene: OliverWalter\_46 Start: 39733, Stop: 39203, Start Num: 9

Candidate Starts for OliverWalter\_46:

(Start: 9 @39733 has 188 MA's), (21, 39628), (38, 39550), (39, 39535), (47, 39490),

Gene: Omniscient\_46 Start: 39730, Stop: 39200, Start Num: 9

Candidate Starts for Omniscient\_46:

(Start: 9 @39730 has 188 MA's), (21, 39625), (38, 39547), (39, 39532), (47, 39487),

Gene: Oosterbaan\_46 Start: 39718, Stop: 39191, Start Num: 9

Candidate Starts for Oosterbaan\_46:

(Start: 9 @39718 has 188 MA's), (21, 39616), (38, 39538), (39, 39523), (47, 39478),

Gene: Opia\_45 Start: 39849, Stop: 39460, Start Num: 25



Candidate Starts for Opia\_45:

(Start: 25 @39849 has 33 MA's), (38, 39792), (43, 39750), (47, 39729), (52, 39684), (54, 39669), (55, 39660), (58, 39648), (59, 39627), (73, 39564), (76, 39558), (80, 39522), (81, 39519), (91, 39480),

Gene: Orfeu\_45 Start: 39423, Stop: 38899, Start Num: 9

Candidate Starts for Orfeu\_45:

(Start: 9 @39423 has 188 MA's), (21, 39324), (38, 39246), (39, 39231), (47, 39186),

Gene: Orwigg\_45 Start: 39417, Stop: 38887, Start Num: 9

Candidate Starts for Orwigg\_45:

(Start: 9 @39417 has 188 MA's), (21, 39312), (38, 39234), (39, 39219), (47, 39174),

Gene: Pacifista\_45 Start: 39420, Stop: 38893, Start Num: 9

Candidate Starts for Pacifista\_45:

(Start: 9 @39420 has 188 MA's), (21, 39318), (38, 39240), (39, 39225), (47, 39180),

Gene: Phantasmagoria\_45 Start: 39861, Stop: 39472, Start Num: 25

Candidate Starts for Phantasmagoria\_45:

(Start: 25 @39861 has 33 MA's), (38, 39804), (43, 39762), (47, 39741), (52, 39696), (54, 39681), (55, 39672), (58, 39660), (59, 39639), (73, 39576), (76, 39570), (80, 39534), (81, 39531), (91, 39492),

Gene: Phareon\_46 Start: 39425, Stop: 38901, Start Num: 9

Candidate Starts for Phareon\_46:

(Start: 9 @39425 has 188 MA's), (21, 39326), (38, 39248), (39, 39233), (47, 39188),

Gene: PhatLouie\_46 Start: 39722, Stop: 39195, Start Num: 9

Candidate Starts for PhatLouie\_46:

(Start: 9 @39722 has 188 MA's), (21, 39620), (38, 39542), (39, 39527), (47, 39482),

Gene: Phelemich\_44 Start: 40305, Stop: 39919, Start Num: 31

Candidate Starts for Phelemich\_44:

(Start: 31 @40305 has 12 MA's), (40, 40245), (43, 40224), (54, 40146), (55, 40137), (61, 40095), (62, 40092), (66, 40062), (74, 40050), (78, 40038), (80, 40014), (85, 39996), (92, 39960),

Gene: PhenghisKhan\_45 Start: 39328, Stop: 38801, Start Num: 9

Candidate Starts for PhenghisKhan\_45:

(Start: 9 @39328 has 188 MA's), (21, 39226), (38, 39148), (39, 39133), (47, 39088),

Gene: Phergie\_45 Start: 39319, Stop: 38792, Start Num: 9

Candidate Starts for Phergie\_45:

(Start: 9 @39319 has 188 MA's), (21, 39217), (38, 39139), (39, 39124), (47, 39079),

Gene: Phipps\_46 Start: 39698, Stop: 39168, Start Num: 9

Candidate Starts for Phipps\_46:

(Start: 9 @39698 has 188 MA's), (21, 39593), (38, 39515), (39, 39500), (47, 39455),

Gene: Phleuron\_45 Start: 39325, Stop: 38798, Start Num: 9

Candidate Starts for Phleuron\_45:

(Start: 9 @39325 has 188 MA's), (21, 39223), (38, 39145), (39, 39130), (47, 39085),

Gene: PhrankReynolds\_44 Start: 39325, Stop: 38798, Start Num: 9

Candidate Starts for PhrankReynolds\_44:

(Start: 9 @39325 has 188 MA's), (21, 39223), (38, 39145), (39, 39130), (47, 39085),

Gene: Phunky\_46 Start: 39722, Stop: 39198, Start Num: 9

Candidate Starts for Phunky\_46:

(Start: 9 @39722 has 188 MA's), (21, 39623), (38, 39545), (39, 39530), (47, 39485),

Gene: Piglet\_0045 Start: 39829, Stop: 39305, Start Num: 9

Candidate Starts for Piglet\_0045:

(Start: 9 @39829 has 188 MA's), (21, 39730), (38, 39652), (39, 39637), (47, 39592),

Gene: PinheadLarry\_46 Start: 39435, Stop: 38911, Start Num: 9

Candidate Starts for PinheadLarry\_46:

(Start: 9 @39435 has 188 MA's), (21, 39336), (38, 39258), (39, 39243), (47, 39198),

Gene: Pinkman\_45 Start: 39278, Stop: 38754, Start Num: 9

Candidate Starts for Pinkman\_45:

(Start: 9 @39278 has 188 MA's), (21, 39179), (38, 39101), (39, 39086), (47, 39041),

Gene: Pipsqueak\_46 Start: 39723, Stop: 39196, Start Num: 9

Candidate Starts for Pipsqueak\_46:

(Start: 9 @39723 has 188 MA's), (21, 39621), (38, 39543), (39, 39528), (47, 39483),

Gene: Placalicious\_45 Start: 39416, Stop: 38889, Start Num: 9

Candidate Starts for Placalicious\_45:

(Start: 9 @39416 has 188 MA's), (21, 39314), (38, 39236), (39, 39221), (47, 39176),

Gene: Plata\_46 Start: 39434, Stop: 38910, Start Num: 9

Candidate Starts for Plata\_46:

(Start: 9 @39434 has 188 MA's), (21, 39335), (38, 39257), (39, 39242), (47, 39197),

Gene: Plmatters\_46 Start: 39719, Stop: 39195, Start Num: 9

Candidate Starts for Plmatters\_46:

(Start: 9 @39719 has 188 MA's), (21, 39620), (38, 39542), (39, 39527), (47, 39482),

Gene: Podrick\_46 Start: 39710, Stop: 39186, Start Num: 9

Candidate Starts for Podrick\_46:

(Start: 9 @39710 has 188 MA's), (21, 39611), (38, 39533), (39, 39518), (47, 39473),

Gene: Pops\_46 Start: 39734, Stop: 39210, Start Num: 9

Candidate Starts for Pops\_46:

(Start: 9 @39734 has 188 MA's), (21, 39635), (38, 39557), (39, 39542), (47, 39497),

Gene: Potter\_45 Start: 39434, Stop: 38910, Start Num: 9

Candidate Starts for Potter\_45:

(Start: 9 @39434 has 188 MA's), (21, 39335), (38, 39257), (39, 39242), (47, 39197),

Gene: PrinceCharming\_45 Start: 39969, Stop: 39580, Start Num: 25

Candidate Starts for PrinceCharming\_45:

(Start: 25 @39969 has 33 MA's), (38, 39912), (43, 39870), (47, 39849), (52, 39804), (54, 39789), (55, 39780), (58, 39768), (59, 39747), (73, 39684), (76, 39678), (80, 39642), (81, 39639), (91, 39600),

Gene: ProfessorX\_46 Start: 39711, Stop: 39181, Start Num: 9

Candidate Starts for ProfessorX\_46:

(Start: 9 @39711 has 188 MA's), (21, 39606), (38, 39528), (39, 39513), (47, 39468),

Gene: Puhltonio\_46 Start: 39726, Stop: 39202, Start Num: 9

Candidate Starts for Puhltonio\_46:

(Start: 9 @39726 has 188 MA's), (21, 39627), (38, 39549), (39, 39534), (47, 39489),

Gene: Pupper\_184 Start: 132729, Stop: 133103, Start Num: 35

Candidate Starts for Pupper\_184:

(Start: 35 @132729 has 4 MA's), (40, 132783), (50, 132846), (52, 132867), (79, 133008), (80, 133020), (96, 133092),

Gene: QueenBeane\_46 Start: 39716, Stop: 39192, Start Num: 9

Candidate Starts for QueenBeane\_46:

(Start: 9 @39716 has 188 MA's), (21, 39617), (38, 39539), (39, 39524), (47, 39479),

Gene: Quisquilliae\_46 Start: 39747, Stop: 39220, Start Num: 9

Candidate Starts for Quisquilliae\_46:

(Start: 9 @39747 has 188 MA's), (21, 39645), (38, 39567), (39, 39552), (47, 39507),

Gene: Reprobate\_45 Start: 40310, Stop: 39924, Start Num: 31

Candidate Starts for Reprobate\_45:

(Start: 31 @40310 has 12 MA's), (40, 40250), (43, 40229), (54, 40151), (55, 40142), (61, 40100), (62, 40097), (66, 40067), (74, 40055), (78, 40043), (80, 40019), (85, 40001), (92, 39965),

Gene: Rhinoforte\_45 Start: 39970, Stop: 39581, Start Num: 25

Candidate Starts for Rhinoforte\_45:

(Start: 25 @39970 has 33 MA's), (38, 39913), (43, 39871), (47, 39850), (52, 39805), (54, 39790), (55, 39781), (58, 39769), (59, 39748), (73, 39685), (76, 39679), (80, 39643), (81, 39640), (91, 39601),

Gene: Rich\_43 Start: 39907, Stop: 39521, Start Num: 31

Candidate Starts for Rich\_43:

(Start: 31 @39907 has 12 MA's), (36, 39886), (40, 39847), (43, 39826), (51, 39766), (55, 39739), (74, 39652), (80, 39616), (89, 39571),

Gene: Ricotta\_45 Start: 39439, Stop: 38918, Start Num: 9

Candidate Starts for Ricotta\_45:

(Start: 9 @39439 has 188 MA's), (21, 39343), (38, 39265), (39, 39250), (47, 39205),

Gene: Riggan\_46 Start: 39706, Stop: 39179, Start Num: 9

Candidate Starts for Riggan\_46:

(Start: 9 @39706 has 188 MA's), (21, 39604), (38, 39526), (39, 39511), (47, 39466),

Gene: Rimu\_48 Start: 39452, Stop: 38928, Start Num: 9

Candidate Starts for Rimu\_48:

(Start: 9 @39452 has 188 MA's), (21, 39353), (38, 39275), (39, 39260), (47, 39215),

Gene: Rinkes\_45 Start: 40821, Stop: 40423, Start Num: 34

Candidate Starts for Rinkes\_45:

(2, 41061), (4, 41028), (5, 40998), (Start: 34 @40821 has 2 MA's), (43, 40752), (47, 40734), (57, 40656), (60, 40626), (85, 40509), (94, 40473),

Gene: Rita130\_45 Start: 40037, Stop: 39651, Start Num: 31

Candidate Starts for Rita130\_45:

(10, 40175), (Start: 31 @40037 has 12 MA's), (36, 40016), (40, 39977), (43, 39956), (51, 39896), (55, 39869), (74, 39782), (80, 39746), (85, 39728), (92, 39692), (95, 39671),

Gene: Riverton\_45 Start: 39724, Stop: 39200, Start Num: 9

Candidate Starts for Riverton\_45:

(Start: 9 @39724 has 188 MA's), (21, 39625), (38, 39547), (39, 39532), (47, 39487),

Gene: Roliet\_46 Start: 39718, Stop: 39188, Start Num: 9

Candidate Starts for Roliet\_46:

(Start: 9 @39718 has 188 MA's), (21, 39613), (38, 39535), (39, 39520), (47, 39475),

Gene: Roscoe\_47 Start: 39956, Stop: 39426, Start Num: 9

Candidate Starts for Roscoe\_47:

(Start: 9 @39956 has 188 MA's), (21, 39851), (38, 39773), (39, 39758), (47, 39713),

Gene: Rosebush\_44 Start: 39977, Stop: 39588, Start Num: 25

Candidate Starts for Rosebush\_44:

(Start: 25 @39977 has 33 MA's), (38, 39920), (43, 39878), (47, 39857), (52, 39812), (54, 39797), (55, 39788), (58, 39776), (59, 39755), (73, 39692), (76, 39686), (80, 39650), (81, 39647), (91, 39608),

Gene: SCentae\_183 Start: 132921, Stop: 133295, Start Num: 35

Candidate Starts for SCentae\_183:

(Start: 35 @132921 has 4 MA's), (40, 132975), (50, 133038), (52, 133059), (79, 133200), (80, 133212), (96, 133284),

Gene: SDcharge11\_46 Start: 39696, Stop: 39166, Start Num: 9

Candidate Starts for SDcharge11\_46:

(Start: 9 @39696 has 188 MA's), (21, 39591), (38, 39513), (39, 39498), (47, 39453),

Gene: Sabella\_44 Start: 39854, Stop: 39465, Start Num: 25

Candidate Starts for Sabella\_44:

(Start: 25 @39854 has 33 MA's), (38, 39797), (43, 39755), (47, 39734), (52, 39689), (54, 39674), (55, 39665), (58, 39653), (59, 39632), (73, 39569), (76, 39563), (80, 39527), (81, 39524), (91, 39485),

Gene: Saguaro\_46 Start: 41034, Stop: 40648, Start Num: 31

Candidate Starts for Saguaro\_46:

(Start: 31 @41034 has 12 MA's), (43, 40953), (54, 40875), (59, 40833), (61, 40824), (63, 40815),

Gene: Samaymay\_46 Start: 39716, Stop: 39192, Start Num: 9

Candidate Starts for Samaymay\_46:

(Start: 9 @39716 has 188 MA's), (21, 39617), (38, 39539), (39, 39524), (47, 39479),

Gene: SassyCat97\_45 Start: 39422, Stop: 38898, Start Num: 9

Candidate Starts for SassyCat97\_45:

(Start: 9 @39422 has 188 MA's), (21, 39323), (38, 39245), (39, 39230), (47, 39185),

Gene: Schadenfreude\_45 Start: 39264, Stop: 38749, Start Num: 9

Candidate Starts for Schadenfreude\_45:

(Start: 9 @39264 has 188 MA's), (21, 39162), (38, 39096), (39, 39081), (47, 39036),

Gene: Schueller\_45 Start: 39435, Stop: 38911, Start Num: 9

Candidate Starts for Schueller\_45:

(Start: 9 @39435 has 188 MA's), (21, 39336), (38, 39258), (39, 39243), (47, 39198),

Gene: Scrick\_46 Start: 39446, Stop: 38916, Start Num: 9

Candidate Starts for Scrick\_46:

(Start: 9 @39446 has 188 MA's), (21, 39341), (38, 39263), (39, 39248), (47, 39203),

Gene: Selr12\_46 Start: 39449, Stop: 38919, Start Num: 9

Candidate Starts for Selr12\_46:

(Start: 9 @39449 has 188 MA's), (21, 39344), (38, 39266), (39, 39251), (47, 39206),

Gene: Serendipitous\_44 Start: 39865, Stop: 39479, Start Num: 31

Candidate Starts for Serendipitous\_44:

(18, 39916), (Start: 31 @39865 has 12 MA's), (36, 39844), (40, 39805), (43, 39784), (51, 39724), (55, 39697), (74, 39610), (80, 39574), (85, 39556), (92, 39520),

Gene: Serendipity\_46 Start: 39740, Stop: 39216, Start Num: 9

Candidate Starts for Serendipity\_46:

(Start: 9 @39740 has 188 MA's), (21, 39641), (38, 39563), (39, 39548), (47, 39503),

Gene: Serpentine\_0046 Start: 39721, Stop: 39197, Start Num: 9

Candidate Starts for Serpentine\_0046:

(Start: 9 @39721 has 188 MA's), (21, 39622), (38, 39544), (39, 39529), (47, 39484),

Gene: Shatter\_39 Start: 33273, Stop: 32851, Start Num: 24

Candidate Starts for Shatter\_39:

(Start: 24 @33273 has 10 MA's), (43, 33156), (47, 33138), (53, 33081), (67, 32994), (72, 32979), (82, 32934), (90, 32892),

Gene: Sheila\_46 Start: 39758, Stop: 39234, Start Num: 9

Candidate Starts for Sheila\_46:

(Start: 9 @39758 has 188 MA's), (21, 39659), (38, 39581), (39, 39566), (47, 39521),

Gene: Shenyu\_44 Start: 40099, Stop: 39713, Start Num: 31

Candidate Starts for Shenyu\_44:

(Start: 31 @40099 has 12 MA's), (36, 40078), (40, 40039), (43, 40018), (51, 39958), (54, 39940), (55, 39931), (74, 39844), (80, 39808), (85, 39790), (92, 39754),

Gene: ShiVal\_46 Start: 39720, Stop: 39190, Start Num: 9

Candidate Starts for ShiVal\_46:

(Start: 9 @39720 has 188 MA's), (21, 39615), (38, 39537), (39, 39522), (47, 39477),

Gene: SilverBell\_46 Start: 39739, Stop: 39212, Start Num: 9

Candidate Starts for SilverBell\_46:

(Start: 9 @39739 has 188 MA's), (21, 39637), (38, 39559), (39, 39544), (47, 39499),

Gene: Simielle\_45 Start: 39409, Stop: 38885, Start Num: 9

Candidate Starts for Simielle\_45:

(Start: 9 @39409 has 188 MA's), (21, 39310), (38, 39232), (39, 39217), (47, 39172),

Gene: SirJeffery\_45 Start: 40036, Stop: 39650, Start Num: 31

Candidate Starts for SirJeffery\_45:

(10, 40174), (Start: 31 @40036 has 12 MA's), (36, 40015), (40, 39976), (43, 39955), (51, 39895), (55, 39868), (74, 39781), (80, 39745), (85, 39727), (92, 39691), (95, 39670),

Gene: Sisko\_39 Start: 34043, Stop: 33624, Start Num: 24  
Candidate Starts for Sisko\_39:  
(Start: 24 @34043 has 10 MA's), (43, 33926), (47, 33908), (82, 33707), (88, 33671), (90, 33665),

Gene: Skippy\_46 Start: 39704, Stop: 39180, Start Num: 9  
Candidate Starts for Skippy\_46:  
(Start: 9 @39704 has 188 MA's), (21, 39605), (38, 39527), (39, 39512), (47, 39467),

Gene: Skog\_16 Start: 8706, Stop: 9095, Start Num: 35  
Candidate Starts for Skog\_16:  
(Start: 35 @8706 has 4 MA's), (43, 8793), (47, 8811), (49, 8832), (50, 8835), (52, 8856), (79, 9000),  
(83, 9024),

Gene: Slatt\_46 Start: 39730, Stop: 39206, Start Num: 9  
Candidate Starts for Slatt\_46:  
(Start: 9 @39730 has 188 MA's), (21, 39631), (38, 39553), (39, 39538), (47, 39493),

Gene: Solosis\_45 Start: 39431, Stop: 38907, Start Num: 9  
Candidate Starts for Solosis\_45:  
(Start: 9 @39431 has 188 MA's), (21, 39332), (38, 39254), (39, 39239), (47, 39194),

Gene: Sophia\_45 Start: 39431, Stop: 38907, Start Num: 9  
Candidate Starts for Sophia\_45:  
(Start: 9 @39431 has 188 MA's), (21, 39332), (38, 39254), (39, 39239), (47, 39194),

Gene: Soto\_46 Start: 39730, Stop: 39200, Start Num: 9  
Candidate Starts for Soto\_46:  
(Start: 9 @39730 has 188 MA's), (21, 39625), (38, 39547), (39, 39532), (47, 39487),

Gene: Sour\_44 Start: 37942, Stop: 37568, Start Num: 29  
Candidate Starts for Sour\_44:  
(7, 38089), (12, 38026), (Start: 29 @37942 has 1 MA's), (43, 37858), (47, 37840), (55, 37771), (56,  
37768), (75, 37684), (82, 37645), (97, 37582),

Gene: Spartan300\_46 Start: 39716, Stop: 39186, Start Num: 9  
Candidate Starts for Spartan300\_46:  
(Start: 9 @39716 has 188 MA's), (21, 39611), (38, 39533), (39, 39518), (47, 39473),

Gene: Squid\_46 Start: 39422, Stop: 38898, Start Num: 9  
Candidate Starts for Squid\_46:  
(Start: 9 @39422 has 188 MA's), (21, 39323), (38, 39245), (39, 39230), (47, 39185),

Gene: Squiggle\_46 Start: 39440, Stop: 38910, Start Num: 9  
Candidate Starts for Squiggle\_46:  
(Start: 9 @39440 has 188 MA's), (21, 39335), (38, 39257), (39, 39242), (47, 39197),

Gene: StAugustine\_57 Start: 48208, Stop: 47849, Start Num: 28  
Candidate Starts for StAugustine\_57:  
(11, 48319), (13, 48304), (16, 48274), (Start: 28 @48208 has 2 MA's), (43, 48115), (57, 48019), (62,  
47983), (80, 47917), (85, 47899), (86, 47896),

Gene: StinkyVeggy\_46 Start: 40176, Stop: 39790, Start Num: 31  
Candidate Starts for StinkyVeggy\_46:

(Start: 31 @40176 has 12 MA's), (36, 40155), (40, 40116), (43, 40095), (51, 40035), (54, 40017), (55, 40008), (80, 39885), (85, 39867), (92, 39831),

Gene: Struggle\_45 Start: 39272, Stop: 38748, Start Num: 9

Candidate Starts for Struggle\_45:

(Start: 9 @39272 has 188 MA's), (21, 39173), (38, 39095), (39, 39080), (47, 39035),

Gene: Suigeneris\_45 Start: 40039, Stop: 39653, Start Num: 31

Candidate Starts for Suigeneris\_45:

(10, 40177), (Start: 31 @40039 has 12 MA's), (36, 40018), (40, 39979), (43, 39958), (51, 39898), (55, 39871), (74, 39784), (80, 39748), (85, 39730), (92, 39694), (95, 39673),

Gene: Surely\_46 Start: 39727, Stop: 39200, Start Num: 9

Candidate Starts for Surely\_46:

(Start: 9 @39727 has 188 MA's), (21, 39625), (38, 39547), (39, 39532), (47, 39487),

Gene: Swiphy\_48 Start: 39722, Stop: 39195, Start Num: 9

Candidate Starts for Swiphy\_48:

(Start: 9 @39722 has 188 MA's), (21, 39620), (38, 39542), (39, 39527), (47, 39482),

Gene: TA17A\_46 Start: 39844, Stop: 39455, Start Num: 25

Candidate Starts for TA17A\_46:

(Start: 25 @39844 has 33 MA's), (38, 39787), (43, 39745), (47, 39724), (52, 39679), (54, 39664), (55, 39655), (58, 39643), (59, 39622), (73, 39559), (76, 39553), (80, 39517), (81, 39514), (91, 39475),

Gene: TallGrassMM\_46 Start: 39346, Stop: 38822, Start Num: 9

Candidate Starts for TallGrassMM\_46:

(Start: 9 @39346 has 188 MA's), (21, 39247), (38, 39169), (39, 39154), (47, 39109),

Gene: Telesworld\_45 Start: 39419, Stop: 38895, Start Num: 9

Candidate Starts for Telesworld\_45:

(Start: 9 @39419 has 188 MA's), (21, 39320), (38, 39242), (39, 39227), (47, 39182),

Gene: Thonko\_44 Start: 37338, Stop: 36958, Start Num: 31

Candidate Starts for Thonko\_44:

(10, 37470), (17, 37404), (Start: 31 @37338 has 12 MA's), (43, 37257), (47, 37239),

Gene: Thora\_46 Start: 39726, Stop: 39199, Start Num: 9

Candidate Starts for Thora\_46:

(Start: 9 @39726 has 188 MA's), (21, 39624), (38, 39546), (39, 39531), (47, 39486),

Gene: Thunderbird\_45 Start: 39427, Stop: 38903, Start Num: 9

Candidate Starts for Thunderbird\_45:

(Start: 9 @39427 has 188 MA's), (21, 39328), (38, 39250), (39, 39235), (47, 39190),

Gene: Timmi\_45 Start: 39432, Stop: 38908, Start Num: 9

Candidate Starts for Timmi\_45:

(Start: 9 @39432 has 188 MA's), (21, 39333), (38, 39255), (39, 39240), (47, 39195),

Gene: Tinciduntolum\_46 Start: 39982, Stop: 39593, Start Num: 25

Candidate Starts for Tinciduntolum\_46:

(Start: 25 @39982 has 33 MA's), (38, 39925), (43, 39883), (47, 39862), (52, 39817), (54, 39802), (55, 39793), (58, 39781), (59, 39760), (73, 39697), (76, 39691), (80, 39655), (81, 39652), (91, 39613),

Gene: TomBombadil\_46 Start: 39717, Stop: 39193, Start Num: 9  
Candidate Starts for TomBombadil\_46:  
(Start: 9 @39717 has 188 MA's), (21, 39618), (38, 39540), (39, 39525), (47, 39480),

Gene: Tomlarah\_46 Start: 39714, Stop: 39184, Start Num: 9  
Candidate Starts for Tomlarah\_46:  
(Start: 9 @39714 has 188 MA's), (21, 39609), (38, 39531), (39, 39516), (47, 39471),

Gene: Toni\_45 Start: 39424, Stop: 38900, Start Num: 9  
Candidate Starts for Toni\_45:  
(Start: 9 @39424 has 188 MA's), (21, 39325), (38, 39247), (39, 39232), (47, 39187),

Gene: Tres\_45 Start: 39857, Stop: 39468, Start Num: 25  
Candidate Starts for Tres\_45:  
(Start: 25 @39857 has 33 MA's), (38, 39800), (43, 39758), (47, 39737), (52, 39692), (54, 39677), (55, 39668), (58, 39656), (59, 39635), (73, 39572), (76, 39566), (80, 39530), (81, 39527), (91, 39488),

Gene: True\_45 Start: 39424, Stop: 38897, Start Num: 9  
Candidate Starts for True\_45:  
(Start: 9 @39424 has 188 MA's), (21, 39322), (38, 39244), (39, 39229), (47, 39184),

Gene: TyrionL\_45 Start: 39280, Stop: 38756, Start Num: 9  
Candidate Starts for TyrionL\_45:  
(Start: 9 @39280 has 188 MA's), (21, 39181), (38, 39103), (39, 39088), (47, 39043),

Gene: UAch1\_46 Start: 39733, Stop: 39206, Start Num: 9  
Candidate Starts for UAch1\_46:  
(Start: 9 @39733 has 188 MA's), (21, 39631), (38, 39553), (39, 39538), (47, 39493),

Gene: Vaishali24\_45 Start: 39382, Stop: 38858, Start Num: 9  
Candidate Starts for Vaishali24\_45:  
(Start: 9 @39382 has 188 MA's), (21, 39283), (38, 39205), (39, 39190), (47, 39145),

Gene: Valjean\_46 Start: 39719, Stop: 39189, Start Num: 9  
Candidate Starts for Valjean\_46:  
(Start: 9 @39719 has 188 MA's), (21, 39614), (38, 39536), (39, 39521), (47, 39476),

Gene: Vaticameos\_42 Start: 37411, Stop: 36887, Start Num: 9  
Candidate Starts for Vaticameos\_42:  
(Start: 9 @37411 has 188 MA's), (21, 37312), (38, 37234), (39, 37219), (47, 37174),

Gene: Veritas\_45 Start: 39286, Stop: 38759, Start Num: 9  
Candidate Starts for Veritas\_45:  
(Start: 9 @39286 has 188 MA's), (21, 39184), (38, 39106), (39, 39091), (47, 39046),

Gene: Vic9\_00044 Start: 40363, Stop: 39974, Start Num: 25  
Candidate Starts for Vic9\_00044:  
(Start: 25 @40363 has 33 MA's), (38, 40306), (43, 40264), (47, 40243), (52, 40198), (54, 40183), (55, 40174), (58, 40162), (59, 40141), (73, 40078), (76, 40072), (80, 40036), (81, 40033), (85, 40018), (91, 39994),

Gene: Virapocalypse\_46 Start: 39714, Stop: 39184, Start Num: 9



Candidate Starts for Virapocalypse\_46:

(Start: 9 @39714 has 188 MA's), (21, 39609), (38, 39531), (39, 39516), (47, 39471),

Gene: Vista\_46 Start: 39724, Stop: 39197, Start Num: 9

Candidate Starts for Vista\_46:

(Start: 9 @39724 has 188 MA's), (21, 39622), (38, 39544), (39, 39529), (47, 39484),

Gene: Vivaldi\_46 Start: 39750, Stop: 39226, Start Num: 9

Candidate Starts for Vivaldi\_46:

(Start: 9 @39750 has 188 MA's), (21, 39651), (38, 39573), (39, 39558), (47, 39513),

Gene: Vortex\_46 Start: 39427, Stop: 38903, Start Num: 9

Candidate Starts for Vortex\_46:

(Start: 9 @39427 has 188 MA's), (21, 39328), (38, 39250), (39, 39235), (47, 39190),

Gene: Wallhey\_45 Start: 39284, Stop: 38760, Start Num: 9

Candidate Starts for Wallhey\_45:

(Start: 9 @39284 has 188 MA's), (21, 39185), (38, 39107), (39, 39092), (47, 39047),

Gene: Waterdiva\_46 Start: 39716, Stop: 39189, Start Num: 9

Candidate Starts for Waterdiva\_46:

(Start: 9 @39716 has 188 MA's), (21, 39614), (38, 39536), (39, 39521), (47, 39476),

Gene: Weher20\_46 Start: 39715, Stop: 39188, Start Num: 9

Candidate Starts for Weher20\_46:

(Start: 9 @39715 has 188 MA's), (21, 39613), (38, 39535), (39, 39520), (47, 39475),

Gene: West99\_45 Start: 39977, Stop: 39588, Start Num: 25

Candidate Starts for West99\_45:

(Start: 25 @39977 has 33 MA's), (38, 39920), (43, 39878), (47, 39857), (52, 39812), (54, 39797), (55, 39788), (58, 39776), (59, 39755), (73, 39692), (76, 39686), (80, 39650), (81, 39647), (91, 39608),

Gene: Wooper\_41 Start: 35248, Stop: 34859, Start Num: 33

Candidate Starts for Wooper\_41:

(3, 35497), (Start: 33 @35248 has 5 MA's), (40, 35188), (42, 35173), (53, 35080), (55, 35068), (59, 35035), (72, 34987), (77, 34978), (85, 34930),

Gene: Xavier\_45 Start: 39434, Stop: 38910, Start Num: 9

Candidate Starts for Xavier\_45:

(Start: 9 @39434 has 188 MA's), (21, 39335), (38, 39257), (39, 39242), (47, 39197),

Gene: Yago84\_39 Start: 34117, Stop: 33698, Start Num: 24

Candidate Starts for Yago84\_39:

(Start: 24 @34117 has 10 MA's), (43, 34000), (47, 33982), (82, 33781), (88, 33745), (90, 33739),

Gene: Yeshua\_41 Start: 35225, Stop: 34836, Start Num: 33

Candidate Starts for Yeshua\_41:

(3, 35474), (Start: 33 @35225 has 5 MA's), (40, 35165), (42, 35150), (53, 35057), (55, 35045), (59, 35012), (72, 34964), (77, 34955), (85, 34907),

Gene: YouGoGlencoco\_46 Start: 39718, Stop: 39191, Start Num: 9

Candidate Starts for YouGoGlencoco\_46:

(Start: 9 @39718 has 188 MA's), (21, 39616), (38, 39538), (39, 39523), (47, 39478),

Gene: Zaider\_47 Start: 39948, Stop: 39421, Start Num: 9

Candidate Starts for Zaider\_47:

(Start: 9 @39948 has 188 MA's), (21, 39846), (38, 39768), (39, 39753), (47, 39708),

Gene: Zelda\_46 Start: 39765, Stop: 39238, Start Num: 9

Candidate Starts for Zelda\_46:

(Start: 9 @39765 has 188 MA's), (21, 39663), (38, 39585), (39, 39570), (47, 39525),