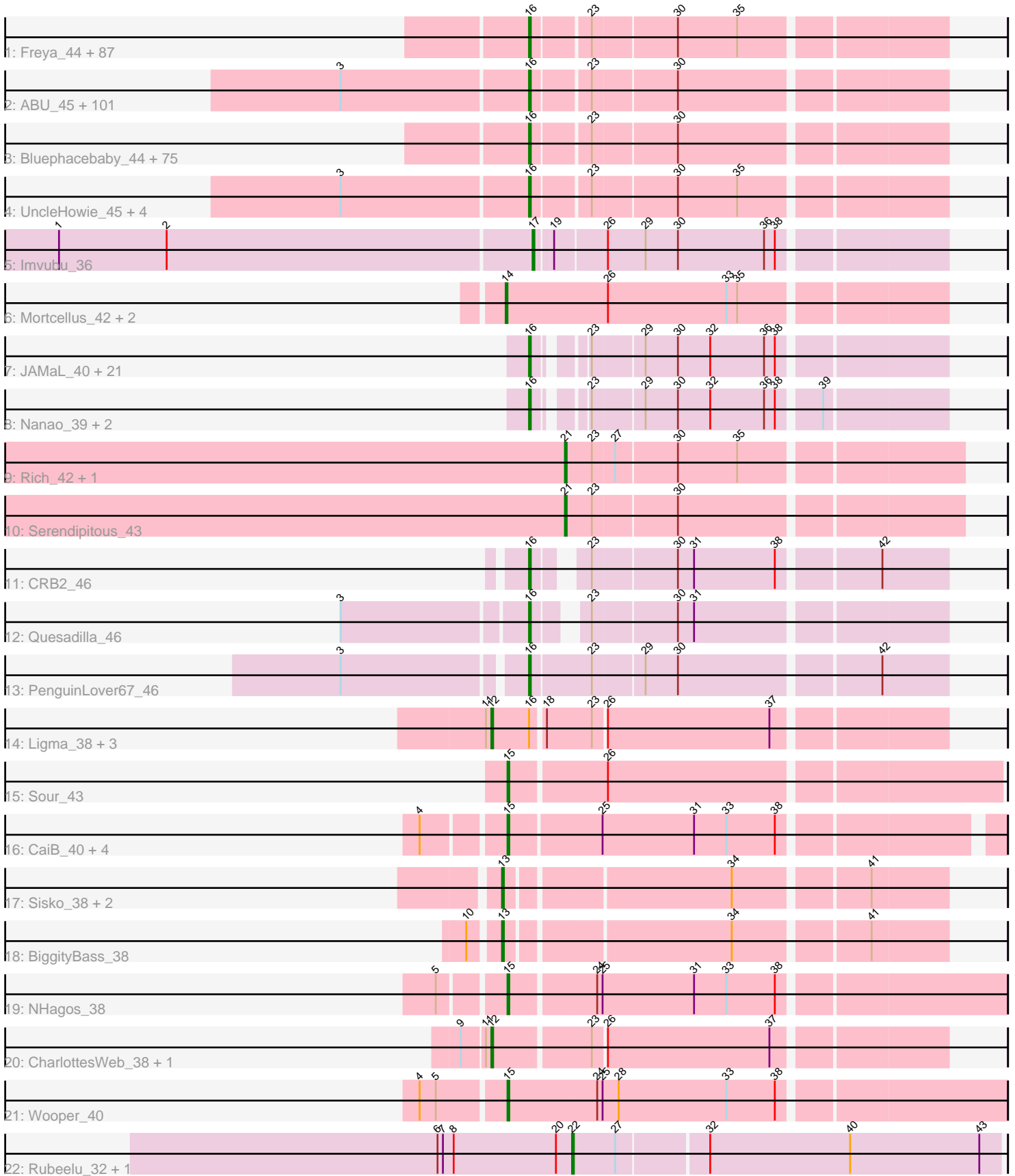


Pham 163291



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 163291 Report

This analysis was run 04/28/24 on database version 559.

Pham number 163291 has 326 members, 35 are drafts.

Phages represented in each track:

- Track 1 : Freya\_44, Morgushi\_45, MiniBoss\_45, Pacifista\_47, Grand2040\_44, KLucky39\_45, Zonia\_45, Beaglebox\_44, Kwadwo\_44, Cher\_44, Mikota\_45, Roy17\_45, KingTut\_36, Vaticameos\_41, Daffy\_45, Piglet\_0044, Ashraf\_44, ImtiyazSitla\_44, Haleema\_44, Vortex\_45, Fozzie\_44, Apizium\_44, CamL\_45, MrPhizzler\_44, RedMaple\_44, Solosis\_44, Murdoc\_45, Serpentine\_0045, Lulumae\_44, MRabcd\_44, Telesworld\_44, Emiris\_45, Puhltonio\_45, TyrionL\_44, Brilliant\_45, KlimbOn\_45, Cobra\_45, Mana\_44, Simielle\_44, Gyarad\_0045, Swish\_45, Phunky\_45, Derpp\_44, Maru\_44, GeneCoco\_45, Timmi\_44, PinheadLarry\_45, Xavier\_44, Rimu\_47, Wallhey\_44, Banjo\_44, OSmaximus\_45, Labeouficaum\_44, Maskar\_44, FluffyNinja\_45, Longacauda\_44, Soile\_45, Pinkman\_44, Mcshane\_44, Toni\_44, BlackStallion\_45, Gareth\_44, Childish\_44, Vaishali24\_44, Pherdinand\_45, Kwksand96\_44, QueenBeane\_45, TallGrassMM\_45, HSavage\_45, Cannibal\_45, Hocus\_44, JacAttac\_45, Frankicide\_45, Yoshand\_45, Orfeu\_45, Andre\_45, Sigman\_45, MelsMeow\_44, Dione\_44, Legolas\_44, Newman\_45, Sheila\_45, Samaymay\_45, Phareon\_45, Inverness\_45, LuckyMarjie\_44, Serendipity\_45, DuchessDung\_43
- Track 2 : ABU\_45, Mosaic\_44, Badfish\_45, Omniscient\_45, AltPhacts\_45, Selr12\_46, Chaelin\_45, Windsor\_44, DonSanchon\_44, Chah\_46, ThreeOh3D2\_45, Gophee\_45, Potter\_44, HighStump\_44, LasagnaCat\_45, DoesntMatter\_44, PG1\_45, Megamind20\_45, Skippy\_45, Roscoe\_46, Lumine\_44, Lopsy\_44, Horchata\_45, Coletti\_44, LemonSlice\_45, Chute\_44, Katniss\_45, Scrick\_45, Fringe\_45, CheetO\_45, Duggie\_44, Podrick\_45, Quisquillae\_45, Mutante\_44, Keitherie\_45, Crownjwl\_45, Scoot17C\_45, IsaacEli\_45, Trypo\_45, LostAndPhound\_44, Charles1\_45, SassyCat97\_44, Schadenfreude\_44, Megatron\_45, CampRoach\_44, Vivaldi\_45, LeiMonet\_46, Spartan300\_45, MitKao\_45, DelRivs\_44, Giraffe\_45, Olak\_45, Cornobble\_44, LeeLot\_45, Numberten\_45, PhatCats2014\_45, Squiggle\_45, Boehler\_45, TomBombadil\_45, Squid\_45, ShiVal\_45, Aelin\_44, Orion\_45, Lulwa\_45, Anderson\_45, Inchworm\_45, CharlieGBrown\_44, Doddsville\_45, Bishoperium\_44, True\_44, Mecca\_44, Thunderbird\_45, Craff\_45, Lego3393\_44, HenryJackson\_44, Virgeve\_44, Struggle\_44, Olive\_45, Chorkpop\_45, SDcharge11\_45, Jiraiya\_46, Kimbrough\_45, Kikipoo\_45, EmpTee\_45, Antonia\_44, Nacho\_0045, Oline\_44, Held\_45, Tomlarah\_45, Durga\_45, PhrodoBaggins\_44, Nyala\_44, Fang\_45, DaddyDaniels\_45, Adriana\_45, Manad\_44, Harvey\_45, ProfessorX\_45, Robyn\_44, Valjean\_45, Morty\_45, Jiminy\_44
- Track 3 : Bluephacebaby\_44, Swiphy\_47, Hamish\_45, Pipsqueak\_45, Melc17\_45, Altwerkus\_44, Usavi\_45, Burr\_44, MichaelPhcott\_44, PhenghisKhan\_44, Hartsy\_44, JangoPhett\_45, Veritas\_44, Cosmolli16\_44, Eremos\_45, Basato\_46, Etaye\_45,

Dati\_45, Mag7\_44, BatteryCK\_44, AbsoluteMadLad\_44, Mulan\_44, BlueHusk\_45, Prickles\_45, Iridoclysis\_45, KingVeVeVe\_45, Colbert\_45, Kailash\_45, Phergie\_44, Mesh1\_45, Riggan\_45, Kahve\_44, PhatLouie\_45, DirtJuice\_45, Magic8\_45, Daka\_46, Weher20\_45, Dingo\_45, Oosterbaan\_45, Vista\_45, YouGoGlencoco\_45, Placalicious\_44, Phipps\_45, Soto\_45, Jillium\_44, Schueller\_45, Zaider\_46, Suffolk\_45, Slatt\_45, Sophia\_44, Gwilliam\_46, UAch1\_45, OliverWalter\_45, FriarPreacher\_44, JDog\_45, Virapocalypse\_45, Haimas\_45, Surely\_45, Zelda\_45, Matalotodo\_45, Roliet\_45, Chunky\_45, FugateOSU\_44, Phamished\_45, Buckeye\_45, Waterdiva\_45, Thora\_45, Orwigg\_45, Nicole21\_45, JakeO\_44, PhrankReynolds\_43, Hetaeria\_45, Hertubise\_45, Lasso\_45, Phleuron\_44, Tooj\_45

- Track 4 : UncleHowie\_45, Eugenia\_45, Kloppinator\_45, Pops\_45, Plmatters\_45
- Track 5 : Imvubu\_36
- Track 6 : Mortcellus\_42, Bernardo\_44, Pipefish\_45
- Track 7 : JAMaL\_40, Hydro\_40, Austelle\_41, Apex\_41, Prince\_41, Waleliano\_40, Lolalove\_40, Hangman\_40, Frederick\_40, BrownCNA\_42, Mudslide\_40, Mithril\_40, Nigel\_39, JaguarMi\_40, Magpie\_39, BobbyK\_40, Zemanar\_41, Cooper\_41, RawrgerThat\_41, Heath\_39, Fortunato\_41, VioletZ\_41
- Track 8 : Nanao\_39, ChrisnMich\_40, Poster\_39
- Track 9 : Rich\_42, Bae\_43
- Track 10 : Serendipitous\_43
- Track 11 : CRB2\_46
- Track 12 : Quesadilla\_46
- Track 13 : PenguinLover67\_46
- Track 14 : Ligma\_38, Axumite\_38, Fresco\_38, Shatter\_38
- Track 15 : Sour\_43
- Track 16 : CaiB\_40, CloverMinnie\_40, MossRose\_40, MakoManhole\_40, AnarQue\_40
- Track 17 : Sisko\_38, AnClar\_39, Yago84\_38
- Track 18 : BiggityBass\_38
- Track 19 : NHagos\_38
- Track 20 : CharlottesWeb\_38, Mariokart\_38
- Track 21 : Wooper\_40
- Track 22 : Rubeelu\_32, Butters\_32

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

The start number called the most often in the published annotations is 16, it was called in 268 of the 291 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- ABU\_45, AbsoluteMadLad\_44, Adriana\_45, Aelin\_44, AltPhacts\_45, Altwerkus\_44, Anderson\_45, Andre\_45, Antonia\_44, Apex\_41, Apizium\_44, Ashraf\_44, Austelle\_41, Badfish\_45, Banjo\_44, Basato\_46, BatteryCK\_44, Beaglebox\_44, Bishoperium\_44, BlackStallion\_45, BlueHusk\_45, Bluephacebaby\_44, BobbyK\_40, Boehler\_45, Brilliant\_45, BrownCNA\_42, Buckeye\_45, Burr\_44, CRB2\_46, CamL\_45, CampRoach\_44, Cannibal\_45, Chaelin\_45, Chah\_46, Charles1\_45, CharlieGBrown\_44, CheetO\_45, Cher\_44, Childish\_44, Chorkpop\_45, ChrisnMich\_40, Chunky\_45, Chute\_44, Cobra\_45, Colbert\_45, Coletti\_44, Cooper\_41, Cornobble\_44, Cosmolli16\_44, Craff\_45, Crownjwl\_45, DaddyDaniels\_45, Daffy\_45, Daka\_46, Dati\_45, DelRivs\_44, Derpp\_44, Dingo\_45,

Dione\_44, DirtJuice\_45, Doddsville\_45, DoesntMatter\_44, DonSanchon\_44, DuchessDung\_43, Duggie\_44, Durga\_45, Emiris\_45, EmpTee\_45, Eremos\_45, Etaye\_45, Eugenia\_45, Fang\_45, FluffyNinja\_45, Fortunato\_41, Fozzie\_44, Frankicide\_45, Frederick\_40, Freya\_44, FriarPreacher\_44, Fringe\_45, FugateOSU\_44, Gareth\_44, GeneCoco\_45, Giraffe\_45, Gophee\_45, Grand2040\_44, Gwilliam\_46, Gyarad\_0045, HSavage\_45, Haimas\_45, Haleema\_44, Hamish\_45, Hangman\_40, Hartsy\_44, Harvey\_45, Heath\_39, Held\_45, HenryJackson\_44, Hertubise\_45, Hetaeria\_45, HighStump\_44, Hocus\_44, Horchata\_45, Hydro\_40, ImtiyazSitla\_44, Inchworm\_45, Inverness\_45, Iridoclysis\_45, IsaacEli\_45, JAMaL\_40, JDog\_45, JacAttac\_45, JaguarMi\_40, JakeO\_44, JangoPhett\_45, Jillium\_44, Jiminy\_44, Jiraiya\_46, KLucky39\_45, Kahve\_44, Kailash\_45, Katniss\_45, Keitherie\_45, Kikipoo\_45, Kimbrough\_45, KingTut\_36, KingVeVeVe\_45, KlimbOn\_45, Kloppinator\_45, Kwadwo\_44, Kwksand96\_44, Labeouficaum\_44, LasagnaCat\_45, Lasso\_45, LeeLot\_45, Lego3393\_44, Legolas\_44, LeiMonet\_46, LemonSlice\_45, Lolalove\_40, Longacauda\_44, Lopsy\_44, LostAndPhound\_44, LuckyMarjie\_44, Lulumae\_44, Lulwa\_45, Lumine\_44, MRabcd\_44, Mag7\_44, Magic8\_45, Magpie\_39, Mana\_44, Manad\_44, Maru\_44, Maskar\_44, Matalotodo\_45, Mcshane\_44, Mecca\_44, Megamind20\_45, Megatron\_45, Melc17\_45, MelsMeow\_44, Mesh1\_45, MichaelPhcott\_44, Mikota\_45, MiniBoss\_45, MitKao\_45, Mithril\_40, Morgushi\_45, Morty\_45, Mosaic\_44, MrPhizzler\_44, Mudslide\_40, Mulan\_44, Murdoc\_45, Mutante\_44, Nacho\_0045, Nanao\_39, Newman\_45, Nicole21\_45, Nigel\_39, Numberten\_45, Nyala\_44, OSmaximus\_45, Olak\_45, Oline\_44, Olive\_45, OliverWalter\_45, Omniscient\_45, Oosterbaan\_45, Orfeu\_45, Orion\_45, Orwigg\_45, PG1\_45, Pacifista\_47, PenguinLover67\_46, Phamished\_45, Phareon\_45, PhatCats2014\_45, PhatLouie\_45, PhenghisKhan\_44, Pherdinand\_45, Phergie\_44, Phipps\_45, Phleuron\_44, PhrankReynolds\_43, PhrodoBaggins\_44, Phunky\_45, Piglet\_0044, PinheadLarry\_45, Pinkman\_44, Pipsqueak\_45, Placalicious\_44, Plmatters\_45, Podrick\_45, Pops\_45, Poster\_39, Potter\_44, Prickles\_45, Prince\_41, ProfessorX\_45, Puhltonio\_45, QueenBeane\_45, Quesadilla\_46, Quisquilliae\_45, RawrgerThat\_41, RedMaple\_44, Riggan\_45, Rimu\_47, Robyn\_44, Roliet\_45, Roscoe\_46, Roy17\_45, SDcharge11\_45, Samaymay\_45, SassyCat97\_44, Schadenfreude\_44, Schueller\_45, Scoot17C\_45, Scrick\_45, Selr12\_46, Serendipity\_45, Serpentine\_0045, Sheila\_45, ShiVal\_45, Sigman\_45, Simielle\_44, Skippy\_45, Slatt\_45, Soile\_45, Solosis\_44, Sophia\_44, Soto\_45, Spartan300\_45, Squid\_45, Squiggle\_45, Struggle\_44, Suffolk\_45, Surely\_45, Swiphy\_47, Swish\_45, TallGrassMM\_45, Telesworld\_44, Thora\_45, ThreeOh3D2\_45, Thunderbird\_45, Timmi\_44, TomBombadil\_45, Tomlarah\_45, Toni\_44, Tooj\_45, True\_44, Trypo\_45, TyrionL\_44, UAch1\_45, UncleHowie\_45, Usavi\_45, Vaishali24\_44, Valjean\_45, Vaticameos\_41, Veritas\_44, VioletZ\_41, Virapocalypse\_45, Virgeve\_44, Vista\_45, Vivaldi\_45, Vortex\_45, Waleliano\_40, Wallhey\_44, Waterdiva\_45, Weher20\_45, Windsor\_44, Xavier\_44, Yoshand\_45, YouGoGlencoco\_45, Zaider\_46, Zelda\_45, Zemanar\_41, Zonia\_45,

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

- Axumite\_38, Fresco\_38, Ligma\_38, Shatter\_38,

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

- AnClar\_39, AnarQue\_40, Bae\_43, Bernardo\_44, BiggityBass\_38, Butters\_32, CaiB\_40, CharlottesWeb\_38, CloverMinnie\_40, Imvubu\_36, MakoManhole\_40, Mariokart\_38, Mortcellus\_42, MossRose\_40, NHagos\_38, Pipefish\_45, Rich\_42, Rubeelu\_32, Serendipitous\_43, Sisko\_38, Sour\_43, Wooper\_40, Yago84\_38,

**Summary by start number:**

Start 12:

- Found in 6 of 326 ( 1.8% ) of genes in pham
- Manual Annotations of this start: 3 of 291
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Axumite\_38 (DR), CharlottesWeb\_38 (DR), Fresco\_38 (DR), Ligma\_38 (DR), Mariokart\_38 (DR), Shatter\_38 (DR),

Start 13:

- Found in 4 of 326 ( 1.2% ) of genes in pham
- Manual Annotations of this start: 4 of 291
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AnClar\_39 (DR), BiggityBass\_38 (DR), Sisko\_38 (DR), Yago84\_38 (DR),

Start 14:

- Found in 3 of 326 ( 0.9% ) of genes in pham
- Manual Annotations of this start: 3 of 291
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bernardo\_44 (B3), Mortcellus\_42 (B3), Pipefish\_45 (B3),

Start 15:

- Found in 8 of 326 ( 2.5% ) of genes in pham
- Manual Annotations of this start: 7 of 291
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AnarQue\_40 (DR), CaiB\_40 (DR), CloverMinnie\_40 (DR), MakoManhole\_40 (DR), MossRose\_40 (DR), NHagos\_38 (DR), Sour\_43 (DR), Wooper\_40 (DR),

Start 16:

- Found in 303 of 326 ( 92.9% ) of genes in pham
- Manual Annotations of this start: 268 of 291
- Called 98.7% of time when present
- Phage (with cluster) where this start called: ABU\_45 (B1), AbsoluteMadLad\_44 (B1), Adriana\_45 (B1), Aelin\_44 (B1), AltPhacts\_45 (B1), Altwerkus\_44 (B1), Anderson\_45 (B1), Andre\_45 (B1), Antonia\_44 (B1), Apex\_41 (B4), Apizium\_44 (B1), Ashraf\_44 (B1), Austelle\_41 (B4), Badfish\_45 (B1), Banjo\_44 (B1), Basato\_46 (B1), BatteryCK\_44 (B1), Beaglebox\_44 (B1), Bishoperium\_44 (B1), BlackStallion\_45 (B1), BlueHusk\_45 (B1), Bluephacebaby\_44 (B1), BobbyK\_40 (B4), Boehler\_45 (B1), Brilliant\_45 (B1), BrownCNA\_42 (B4), Buckeye\_45 (B1), Burr\_44 (B1), CRB2\_46 (B9), CamL\_45 (B1), CampRoach\_44 (B1), Cannibal\_45 (B1), Chaelin\_45 (B1), Chah\_46 (B1), Charles1\_45 (B1), CharlieGBrown\_44 (B1), CheetO\_45 (B1), Cher\_44 (B1), Childish\_44 (B1), Chorkpop\_45 (B1), ChrisnMich\_40 (B4), Chunky\_45 (B1), Chute\_44 (B1), Cobra\_45 (B1), Colbert\_45 (B1), Coletti\_44 (B1), Cooper\_41 (B4), Cornobble\_44 (B1), Cosmolli16\_44 (B1), Craff\_45 (B1), Crownjwl\_45 (B1), DaddyDaniels\_45 (B1), Daffy\_45 (B1), Daka\_46 (B1), Dati\_45 (B1), DelRivs\_44 (B1), Derpp\_44 (B1), Dingo\_45 (B1), Dione\_44 (B1), DirtJuice\_45 (B1), Doddsville\_45 (B1), DoesntMatter\_44 (B1), DonSanchon\_44 (B1), DuchessDung\_43 (B1), Duggie\_44 (B1), Durga\_45 (B1), Emiris\_45 (B1), EmpTee\_45 (B1), Eremos\_45 (B1), Etaye\_45 (B1), Eugenia\_45 (B1), Fang\_45 (B1), FluffyNinja\_45 (B1), Fortunato\_41 (B4), Fozzie\_44 (B1), Frankicide\_45 (B1), Frederick\_40 (B4), Freya\_44 (B1), FriarPreacher\_44 (B1), Fringe\_45 (B1), FugateOSU\_44 (B1), Gareth\_44 (B1),

GeneCoco\_45 (B1), Giraffe\_45 (B1), Gophee\_45 (B1), Grand2040\_44 (B1), Gwilliam\_46 (B1), Gyarad\_0045 (B1), HSavage\_45 (B1), Haimas\_45 (B1), Haleema\_44 (B1), Hamish\_45 (B1), Hangman\_40 (B4), Hartsy\_44 (B1), Harvey\_45 (B1), Heath\_39 (B4), Held\_45 (B1), HenryJackson\_44 (B1), Hertubise\_45 (B1), Hetaeria\_45 (B1), HighStump\_44 (B1), Hocus\_44 (B1), Horchata\_45 (B1), Hydro\_40 (B4), ImtiyazSitla\_44 (B1), Inchworm\_45 (B1), Inverness\_45 (B1), Iridoclysis\_45 (B1), IsaacEli\_45 (B1), JAMaL\_40 (B4), JDog\_45 (B1), JacAttac\_45 (B1), JaguarMi\_40 (B4), JakeO\_44 (B1), JangoPhett\_45 (B1), Jillium\_44 (B1), Jiminy\_44 (B1), Jiraiya\_46 (B1), KLucky39\_45 (B1), Kahve\_44 (B1), Kailash\_45 (B1), Katniss\_45 (B1), Keitherie\_45 (B1), Kikipoo\_45 (B1), Kimbrough\_45 (B1), KingTut\_36 (B1), KingVeVeVe\_45 (B1), KlimbOn\_45 (B1), Kloppinator\_45 (B1), Kwadwo\_44 (B1), Kwksand96\_44 (B1), Labeouficaum\_44 (B1), LasagnaCat\_45 (B1), Lasso\_45 (B1), LeeLot\_45 (B1), Lego3393\_44 (B1), Legolas\_44 (B1), LeiMonet\_46 (B1), LemonSlice\_45 (B1), Lolalove\_40 (B4), Longacauda\_44 (B1), Lopsy\_44 (B1), LostAndPhound\_44 (B1), LuckyMarjie\_44 (B1), Lulumae\_44 (B1), Lulwa\_45 (B1), Lumine\_44 (B1), MRabcd\_44 (B1), Mag7\_44 (B1), Magic8\_45 (B1), Magpie\_39 (B4), Mana\_44 (B1), Manad\_44 (B1), Maru\_44 (B1), Maskar\_44 (B1), Matalotodo\_45 (B1), Mcshane\_44 (B1), Mecca\_44 (B1), Megamind20\_45 (B1), Megatron\_45 (B1), Melc17\_45 (B1), MelsMeow\_44 (B1), Mesh1\_45 (B1), MichaelPhcott\_44 (B1), Mikota\_45 (B1), MiniBoss\_45 (B1), MitKao\_45 (B1), Mithril\_40 (B4), Morgushi\_45 (B1), Morty\_45 (B1), Mosaic\_44 (B1), MrPhizzler\_44 (B1), Mudslide\_40 (B4), Mulan\_44 (B1), Murdoc\_45 (B1), Mutante\_44 (B1), Nacho\_0045 (B1), Nanao\_39 (B4), Newman\_45 (B1), Nicole21\_45 (B1), Nigel\_39 (B4), Numberten\_45 (B1), Nyala\_44 (B1), OSmaximus\_45 (B1), Olak\_45 (B1), Oline\_44 (B1), Olive\_45 (B1), OliverWalter\_45 (B1), Omniscient\_45 (B1), Oosterbaan\_45 (B1), Orfeu\_45 (B1), Orion\_45 (B1), Orwigg\_45 (B1), PG1\_45 (B1), Pacifista\_47 (B1), PenguinLover67\_46 (B9), Phamished\_45 (B1), Phareon\_45 (B1), PhatCats2014\_45 (B1), PhatLouie\_45 (B1), PhenghisKhan\_44 (B1), Pherdinand\_45 (B1), Phergie\_44 (B1), Phipps\_45 (B1), Phleuron\_44 (B1), PhrankReynolds\_43 (B1), PhrodoBaggins\_44 (B1), Phunky\_45 (B1), Piglet\_0044 (B1), PinheadLarry\_45 (B1), Pinkman\_44 (B1), Pipsqueak\_45 (B1), Placalicious\_44 (B1), Plmatters\_45 (B1), Podrick\_45 (B1), Pops\_45 (B1), Poster\_39 (B4), Potter\_44 (B1), Prickles\_45 (B1), Prince\_41 (B4), ProfessorX\_45 (B1), Puhltonio\_45 (B1), QueenBeane\_45 (B1), Quesadilla\_46 (B9), Quisquillae\_45 (B1), RawrgerThat\_41 (B4), RedMaple\_44 (B1), Riggan\_45 (B1), Rimu\_47 (B1), Robyn\_44 (B1), Roliet\_45 (B1), Roscoe\_46 (B1), Roy17\_45 (B1), SDcharge11\_45 (B1), Samaymay\_45 (B1), SassyCat97\_44 (B1), Schadenfreude\_44 (B1), Schueller\_45 (B1), Scoot17C\_45 (B1), Scrick\_45 (B1), Selr12\_46 (B1), Serendipity\_45 (B1), Serpentine\_0045 (B1), Sheila\_45 (B1), ShiVal\_45 (B1), Sigman\_45 (B1), Simielle\_44 (B1), Skippy\_45 (B1), Slatt\_45 (B1), Soile\_45 (B1), Solosis\_44 (B1), Sophia\_44 (B1), Soto\_45 (B1), Spartan300\_45 (B1), Squid\_45 (B1), Squiggle\_45 (B1), Struggle\_44 (B1), Suffolk\_45 (B1), Surely\_45 (B1), Swiphy\_47 (B1), Swish\_45 (B1), TallGrassMM\_45 (B1), Telesworld\_44 (B1), Thora\_45 (B1), ThreeOh3D2\_45 (B1), Thunderbird\_45 (B1), Timmi\_44 (B1), TomBombadil\_45 (B1), Tomlarah\_45 (B1), Toni\_44 (B1), Tooj\_45 (B1), True\_44 (B1), Trypo\_45 (B1), TyrionL\_44 (B1), UAch1\_45 (B1), UncleHowie\_45 (B1), Usavi\_45 (B1), Vaishali24\_44 (B1), Valjean\_45 (B1), Vaticameos\_41 (B1), Veritas\_44 (B1), VioletZ\_41 (B4), Virapocalypse\_45 (B1), Virgeve\_44 (B1), Vista\_45 (B1), Vivaldi\_45 (B1), Vortex\_45 (B1), Waleliano\_40 (B4), Wallhey\_44 (B1), Waterdiva\_45 (B1), Weher20\_45 (B1), Windsor\_44 (B1), Xavier\_44 (B1), Yoshand\_45 (B1), YouGoGlencoco\_45 (B1), Zaider\_46 (B1), Zelda\_45 (B1), Zemanar\_41 (B4), Zonia\_45 (B1),

Start 17:

- Found in 1 of 326 ( 0.3% ) of genes in pham

- Manual Annotations of this start: 1 of 291
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Imvubu\_36 (B10),

Start 21:

- Found in 3 of 326 ( 0.9% ) of genes in pham
- Manual Annotations of this start: 3 of 291
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bae\_43 (B5), Rich\_42 (B5), Serendipitous\_43 (B5),

Start 22:

- Found in 2 of 326 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 2 of 291
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Butters\_32 (N), Rubeelu\_32 (N),

### **Summary by clusters:**

There are 8 clusters represented in this pham: N, B4, B5, B1, B10, B3, DR, B9,

Info for manual annotations of cluster B1:

- Start number 16 was manually annotated 246 times for cluster B1.

Info for manual annotations of cluster B10:

- Start number 17 was manually annotated 1 time for cluster B10.

Info for manual annotations of cluster B3:

- Start number 14 was manually annotated 3 times for cluster B3.

Info for manual annotations of cluster B4:

- Start number 16 was manually annotated 19 times for cluster B4.

Info for manual annotations of cluster B5:

- Start number 21 was manually annotated 3 times for cluster B5.

Info for manual annotations of cluster B9:

- Start number 16 was manually annotated 3 times for cluster B9.

Info for manual annotations of cluster DR:

- Start number 12 was manually annotated 3 times for cluster DR.
- Start number 13 was manually annotated 4 times for cluster DR.
- Start number 15 was manually annotated 7 times for cluster DR.

Info for manual annotations of cluster N:

- Start number 22 was manually annotated 2 times for cluster N.

### **Gene Information:**

Gene: ABU\_45 Start: 39190, Stop: 38975, Start Num: 16

Candidate Starts for ABU\_45:

(3, 39292), (Start: 16 @39190 has 268 MA's), (23, 39160), (30, 39115),

Gene: AbsoluteMadLad\_44 Start: 39199, Stop: 38984, Start Num: 16

Candidate Starts for AbsoluteMadLad\_44:

(Start: 16 @39199 has 268 MA's), (23, 39169), (30, 39124),

Gene: Adriana\_45 Start: 39188, Stop: 38973, Start Num: 16

Candidate Starts for Adriana\_45:

(3, 39290), (Start: 16 @39188 has 268 MA's), (23, 39158), (30, 39113),

Gene: Aelin\_44 Start: 38754, Stop: 38539, Start Num: 16

Candidate Starts for Aelin\_44:

(3, 38856), (Start: 16 @38754 has 268 MA's), (23, 38724), (30, 38679),

Gene: AltPhacts\_45 Start: 39177, Stop: 38962, Start Num: 16

Candidate Starts for AltPhacts\_45:

(3, 39279), (Start: 16 @39177 has 268 MA's), (23, 39147), (30, 39102),

Gene: Altwerkus\_44 Start: 38878, Stop: 38663, Start Num: 16

Candidate Starts for Altwerkus\_44:

(Start: 16 @38878 has 268 MA's), (23, 38848), (30, 38803),

Gene: AnClar\_39 Start: 35606, Stop: 35379, Start Num: 13

Candidate Starts for AnClar\_39:

(Start: 13 @35606 has 4 MA's), (34, 35489), (41, 35420),

Gene: AnarQue\_40 Start: 34838, Stop: 34584, Start Num: 15

Candidate Starts for AnarQue\_40:

(4, 34880), (Start: 15 @34838 has 7 MA's), (25, 34790), (31, 34739), (33, 34721), (38, 34694),

Gene: Anderson\_45 Start: 39183, Stop: 38968, Start Num: 16

Candidate Starts for Anderson\_45:

(3, 39285), (Start: 16 @39183 has 268 MA's), (23, 39153), (30, 39108),

Gene: Andre\_45 Start: 39182, Stop: 38967, Start Num: 16

Candidate Starts for Andre\_45:

(Start: 16 @39182 has 268 MA's), (23, 39152), (30, 39107), (35, 39074),

Gene: Antonia\_44 Start: 38754, Stop: 38539, Start Num: 16

Candidate Starts for Antonia\_44:

(3, 38856), (Start: 16 @38754 has 268 MA's), (23, 38724), (30, 38679),

Gene: Apex\_41 Start: 39377, Stop: 39171, Start Num: 16

Candidate Starts for Apex\_41:

(Start: 16 @39377 has 268 MA's), (23, 39356), (29, 39329), (30, 39311), (32, 39293), (36, 39263), (38, 39257),

Gene: Apizium\_44 Start: 38943, Stop: 38728, Start Num: 16

Candidate Starts for Apizium\_44:

(Start: 16 @38943 has 268 MA's), (23, 38913), (30, 38868), (35, 38835),

Gene: Ashraf\_44 Start: 38747, Stop: 38532, Start Num: 16

Candidate Starts for Ashraf\_44:



(Start: 16 @38747 has 268 MA's), (23, 38717), (30, 38672), (35, 38639),

Gene: Austelle\_41 Start: 39833, Stop: 39627, Start Num: 16

Candidate Starts for Austelle\_41:

(Start: 16 @39833 has 268 MA's), (23, 39812), (29, 39785), (30, 39767), (32, 39749), (36, 39719), (38, 39713),

Gene: Axumite\_38 Start: 32837, Stop: 32601, Start Num: 12

Candidate Starts for Axumite\_38:

(11, 32840), (Start: 12 @32837 has 3 MA's), (Start: 16 @32816 has 268 MA's), (18, 32810), (23, 32786), (26, 32780), (37, 32690),

Gene: Badfish\_45 Start: 39213, Stop: 38998, Start Num: 16

Candidate Starts for Badfish\_45:

(3, 39315), (Start: 16 @39213 has 268 MA's), (23, 39183), (30, 39138),

Gene: Bae\_43 Start: 39550, Stop: 39341, Start Num: 21

Candidate Starts for Bae\_43:

(Start: 21 @39550 has 3 MA's), (23, 39535), (27, 39523), (30, 39490), (35, 39457),

Gene: Banjo\_44 Start: 38888, Stop: 38673, Start Num: 16

Candidate Starts for Banjo\_44:

(Start: 16 @38888 has 268 MA's), (23, 38858), (30, 38813), (35, 38780),

Gene: Basato\_46 Start: 39467, Stop: 39252, Start Num: 16

Candidate Starts for Basato\_46:

(Start: 16 @39467 has 268 MA's), (23, 39437), (30, 39392),

Gene: BatteryCK\_44 Start: 38807, Stop: 38592, Start Num: 16

Candidate Starts for BatteryCK\_44:

(Start: 16 @38807 has 268 MA's), (23, 38777), (30, 38732),

Gene: Beaglebox\_44 Start: 38909, Stop: 38694, Start Num: 16

Candidate Starts for Beaglebox\_44:

(Start: 16 @38909 has 268 MA's), (23, 38879), (30, 38834), (35, 38801),

Gene: Bernardo\_44 Start: 39575, Stop: 39339, Start Num: 14

Candidate Starts for Bernardo\_44:

(Start: 14 @39575 has 3 MA's), (26, 39518), (33, 39452), (35, 39446),

Gene: BiggityBass\_38 Start: 35067, Stop: 34840, Start Num: 13

Candidate Starts for BiggityBass\_38:

(10, 35082), (Start: 13 @35067 has 4 MA's), (34, 34950), (41, 34881),

Gene: Bishoperium\_44 Start: 38897, Stop: 38682, Start Num: 16

Candidate Starts for Bishoperium\_44:

(3, 38999), (Start: 16 @38897 has 268 MA's), (23, 38867), (30, 38822),

Gene: BlackStallion\_45 Start: 39199, Stop: 38984, Start Num: 16

Candidate Starts for BlackStallion\_45:

(Start: 16 @39199 has 268 MA's), (23, 39169), (30, 39124), (35, 39091),

Gene: BlueHusk\_45 Start: 38696, Stop: 38481, Start Num: 16

Candidate Starts for BlueHusk\_45:

(Start: 16 @38696 has 268 MA's), (23, 38666), (30, 38621),

Gene: Bluephacebaby\_44 Start: 38894, Stop: 38679, Start Num: 16

Candidate Starts for Bluephacebaby\_44:

(Start: 16 @38894 has 268 MA's), (23, 38864), (30, 38819),

Gene: BobbyK\_40 Start: 39202, Stop: 38996, Start Num: 16

Candidate Starts for BobbyK\_40:

(Start: 16 @39202 has 268 MA's), (23, 39181), (29, 39154), (30, 39136), (32, 39118), (36, 39088), (38, 39082),

Gene: Boehler\_45 Start: 39200, Stop: 38985, Start Num: 16

Candidate Starts for Boehler\_45:

(3, 39302), (Start: 16 @39200 has 268 MA's), (23, 39170), (30, 39125),

Gene: Brilliant\_45 Start: 38905, Stop: 38690, Start Num: 16

Candidate Starts for Brilliant\_45:

(Start: 16 @38905 has 268 MA's), (23, 38875), (30, 38830), (35, 38797),

Gene: BrownCNA\_42 Start: 39463, Stop: 39257, Start Num: 16

Candidate Starts for BrownCNA\_42:

(Start: 16 @39463 has 268 MA's), (23, 39442), (29, 39415), (30, 39397), (32, 39379), (36, 39349), (38, 39343),

Gene: Buckeye\_45 Start: 39217, Stop: 39002, Start Num: 16

Candidate Starts for Buckeye\_45:

(Start: 16 @39217 has 268 MA's), (23, 39187), (30, 39142),

Gene: Burr\_44 Start: 38894, Stop: 38679, Start Num: 16

Candidate Starts for Burr\_44:

(Start: 16 @38894 has 268 MA's), (23, 38864), (30, 38819),

Gene: Butters\_32 Start: 26751, Stop: 26518, Start Num: 22

Candidate Starts for Butters\_32:

(6, 26826), (7, 26823), (8, 26817), (20, 26760), (Start: 22 @26751 has 2 MA's), (27, 26727), (32, 26679), (40, 26601), (43, 26529),

Gene: CRB2\_46 Start: 41727, Stop: 41521, Start Num: 16

Candidate Starts for CRB2\_46:

(Start: 16 @41727 has 268 MA's), (23, 41706), (30, 41661), (31, 41652), (38, 41607), (42, 41556),

Gene: CaiB\_40 Start: 34824, Stop: 34570, Start Num: 15

Candidate Starts for CaiB\_40:

(4, 34866), (Start: 15 @34824 has 7 MA's), (25, 34776), (31, 34725), (33, 34707), (38, 34680),

Gene: CamL\_45 Start: 39195, Stop: 38980, Start Num: 16

Candidate Starts for CamL\_45:

(Start: 16 @39195 has 268 MA's), (23, 39165), (30, 39120), (35, 39087),

Gene: CampRoach\_44 Start: 39185, Stop: 38970, Start Num: 16

Candidate Starts for CampRoach\_44:

(3, 39287), (Start: 16 @39185 has 268 MA's), (23, 39155), (30, 39110),

Gene: Cannibal\_45 Start: 39178, Stop: 38963, Start Num: 16  
Candidate Starts for Cannibal\_45:  
(Start: 16 @39178 has 268 MA's), (23, 39148), (30, 39103), (35, 39070),

Gene: Chaelin\_45 Start: 38892, Stop: 38677, Start Num: 16  
Candidate Starts for Chaelin\_45:  
(3, 38994), (Start: 16 @38892 has 268 MA's), (23, 38862), (30, 38817),

Gene: Chah\_46 Start: 39212, Stop: 38997, Start Num: 16  
Candidate Starts for Chah\_46:  
(3, 39314), (Start: 16 @39212 has 268 MA's), (23, 39182), (30, 39137),

Gene: Charles1\_45 Start: 39180, Stop: 38965, Start Num: 16  
Candidate Starts for Charles1\_45:  
(3, 39282), (Start: 16 @39180 has 268 MA's), (23, 39150), (30, 39105),

Gene: CharlieGBrown\_44 Start: 38770, Stop: 38555, Start Num: 16  
Candidate Starts for CharlieGBrown\_44:  
(3, 38872), (Start: 16 @38770 has 268 MA's), (23, 38740), (30, 38695),

Gene: CharlottesWeb\_38 Start: 32763, Stop: 32527, Start Num: 12  
Candidate Starts for CharlottesWeb\_38:  
(9, 32778), (11, 32766), (Start: 12 @32763 has 3 MA's), (23, 32712), (26, 32706), (37, 32616),

Gene: CheetO\_45 Start: 39194, Stop: 38979, Start Num: 16  
Candidate Starts for CheetO\_45:  
(3, 39296), (Start: 16 @39194 has 268 MA's), (23, 39164), (30, 39119),

Gene: Cher\_44 Start: 38917, Stop: 38702, Start Num: 16  
Candidate Starts for Cher\_44:  
(Start: 16 @38917 has 268 MA's), (23, 38887), (30, 38842), (35, 38809),

Gene: Childish\_44 Start: 38920, Stop: 38705, Start Num: 16  
Candidate Starts for Childish\_44:  
(Start: 16 @38920 has 268 MA's), (23, 38890), (30, 38845), (35, 38812),

Gene: Chorkpop\_45 Start: 38916, Stop: 38701, Start Num: 16  
Candidate Starts for Chorkpop\_45:  
(3, 39018), (Start: 16 @38916 has 268 MA's), (23, 38886), (30, 38841),

Gene: ChrisnMich\_40 Start: 38163, Stop: 37957, Start Num: 16  
Candidate Starts for ChrisnMich\_40:  
(Start: 16 @38163 has 268 MA's), (23, 38142), (29, 38115), (30, 38097), (32, 38079), (36, 38049), (38, 38043), (39, 38022),

Gene: Chunky\_45 Start: 39203, Stop: 38988, Start Num: 16  
Candidate Starts for Chunky\_45:  
(Start: 16 @39203 has 268 MA's), (23, 39173), (30, 39128),

Gene: Chute\_44 Start: 39241, Stop: 39026, Start Num: 16  
Candidate Starts for Chute\_44:  
(3, 39343), (Start: 16 @39241 has 268 MA's), (23, 39211), (30, 39166),

Gene: CloverMinnie\_40 Start: 34764, Stop: 34510, Start Num: 15  
Candidate Starts for CloverMinnie\_40:  
(4, 34806), (Start: 15 @34764 has 7 MA's), (25, 34716), (31, 34665), (33, 34647), (38, 34620),

Gene: Cobra\_45 Start: 39201, Stop: 38986, Start Num: 16  
Candidate Starts for Cobra\_45:  
(Start: 16 @39201 has 268 MA's), (23, 39171), (30, 39126), (35, 39093),

Gene: Colbert\_45 Start: 39256, Stop: 39041, Start Num: 16  
Candidate Starts for Colbert\_45:  
(Start: 16 @39256 has 268 MA's), (23, 39226), (30, 39181),

Gene: Coletti\_44 Start: 39241, Stop: 39026, Start Num: 16  
Candidate Starts for Coletti\_44:  
(3, 39343), (Start: 16 @39241 has 268 MA's), (23, 39211), (30, 39166),

Gene: Cooper\_41 Start: 38382, Stop: 38176, Start Num: 16  
Candidate Starts for Cooper\_41:  
(Start: 16 @38382 has 268 MA's), (23, 38361), (29, 38334), (30, 38316), (32, 38298), (36, 38268), (38, 38262),

Gene: Cornobble\_44 Start: 38755, Stop: 38540, Start Num: 16  
Candidate Starts for Cornobble\_44:  
(3, 38857), (Start: 16 @38755 has 268 MA's), (23, 38725), (30, 38680),

Gene: Cosmolli16\_44 Start: 38905, Stop: 38690, Start Num: 16  
Candidate Starts for Cosmolli16\_44:  
(Start: 16 @38905 has 268 MA's), (23, 38875), (30, 38830),

Gene: Craff\_45 Start: 39198, Stop: 38983, Start Num: 16  
Candidate Starts for Craff\_45:  
(3, 39300), (Start: 16 @39198 has 268 MA's), (23, 39168), (30, 39123),

Gene: Crownjwl\_45 Start: 38971, Stop: 38756, Start Num: 16  
Candidate Starts for Crownjwl\_45:  
(3, 39073), (Start: 16 @38971 has 268 MA's), (23, 38941), (30, 38896),

Gene: DaddyDaniels\_45 Start: 38889, Stop: 38674, Start Num: 16  
Candidate Starts for DaddyDaniels\_45:  
(3, 38991), (Start: 16 @38889 has 268 MA's), (23, 38859), (30, 38814),

Gene: Daffy\_45 Start: 38920, Stop: 38705, Start Num: 16  
Candidate Starts for Daffy\_45:  
(Start: 16 @38920 has 268 MA's), (23, 38890), (30, 38845), (35, 38812),

Gene: Daka\_46 Start: 39193, Stop: 38978, Start Num: 16  
Candidate Starts for Daka\_46:  
(Start: 16 @39193 has 268 MA's), (23, 39163), (30, 39118),

Gene: Dati\_45 Start: 38914, Stop: 38699, Start Num: 16  
Candidate Starts for Dati\_45:  
(Start: 16 @38914 has 268 MA's), (23, 38884), (30, 38839),

Gene: DelRivs\_44 Start: 38915, Stop: 38700, Start Num: 16  
Candidate Starts for DelRivs\_44:  
(3, 39017), (Start: 16 @38915 has 268 MA's), (23, 38885), (30, 38840),

Gene: Derpp\_44 Start: 38759, Stop: 38544, Start Num: 16  
Candidate Starts for Derpp\_44:  
(Start: 16 @38759 has 268 MA's), (23, 38729), (30, 38684), (35, 38651),

Gene: Dingo\_45 Start: 39177, Stop: 38962, Start Num: 16  
Candidate Starts for Dingo\_45:  
(Start: 16 @39177 has 268 MA's), (23, 39147), (30, 39102),

Gene: Dione\_44 Start: 38899, Stop: 38684, Start Num: 16  
Candidate Starts for Dione\_44:  
(Start: 16 @38899 has 268 MA's), (23, 38869), (30, 38824), (35, 38791),

Gene: DirtJuice\_45 Start: 39183, Stop: 38968, Start Num: 16  
Candidate Starts for DirtJuice\_45:  
(Start: 16 @39183 has 268 MA's), (23, 39153), (30, 39108),

Gene: Doddsville\_45 Start: 38913, Stop: 38698, Start Num: 16  
Candidate Starts for Doddsville\_45:  
(3, 39015), (Start: 16 @38913 has 268 MA's), (23, 38883), (30, 38838),

Gene: DoesntMatter\_44 Start: 39186, Stop: 38971, Start Num: 16  
Candidate Starts for DoesntMatter\_44:  
(3, 39288), (Start: 16 @39186 has 268 MA's), (23, 39156), (30, 39111),

Gene: DonSanchon\_44 Start: 38893, Stop: 38678, Start Num: 16  
Candidate Starts for DonSanchon\_44:  
(3, 38995), (Start: 16 @38893 has 268 MA's), (23, 38863), (30, 38818),

Gene: DuchessDung\_43 Start: 38047, Stop: 37832, Start Num: 16  
Candidate Starts for DuchessDung\_43:  
(Start: 16 @38047 has 268 MA's), (23, 38017), (30, 37972), (35, 37939),

Gene: Duggie\_44 Start: 38915, Stop: 38700, Start Num: 16  
Candidate Starts for Duggie\_44:  
(3, 39017), (Start: 16 @38915 has 268 MA's), (23, 38885), (30, 38840),

Gene: Durga\_45 Start: 39213, Stop: 38998, Start Num: 16  
Candidate Starts for Durga\_45:  
(3, 39315), (Start: 16 @39213 has 268 MA's), (23, 39183), (30, 39138),

Gene: Emiris\_45 Start: 39181, Stop: 38966, Start Num: 16  
Candidate Starts for Emiris\_45:  
(Start: 16 @39181 has 268 MA's), (23, 39151), (30, 39106), (35, 39073),

Gene: EmpTee\_45 Start: 39193, Stop: 38978, Start Num: 16  
Candidate Starts for EmpTee\_45:  
(3, 39295), (Start: 16 @39193 has 268 MA's), (23, 39163), (30, 39118),

Gene: Eremos\_45 Start: 39192, Stop: 38977, Start Num: 16  
Candidate Starts for Eremos\_45:  
(Start: 16 @39192 has 268 MA's), (23, 39162), (30, 39117),

Gene: Etaye\_45 Start: 39183, Stop: 38968, Start Num: 16  
Candidate Starts for Etaye\_45:  
(Start: 16 @39183 has 268 MA's), (23, 39153), (30, 39108),

Gene: Eugenia\_45 Start: 39202, Stop: 38987, Start Num: 16  
Candidate Starts for Eugenia\_45:  
(3, 39304), (Start: 16 @39202 has 268 MA's), (23, 39172), (30, 39127), (35, 39094),

Gene: Fang\_45 Start: 39206, Stop: 38991, Start Num: 16  
Candidate Starts for Fang\_45:  
(3, 39308), (Start: 16 @39206 has 268 MA's), (23, 39176), (30, 39131),

Gene: FluffyNinja\_45 Start: 39199, Stop: 38984, Start Num: 16  
Candidate Starts for FluffyNinja\_45:  
(Start: 16 @39199 has 268 MA's), (23, 39169), (30, 39124), (35, 39091),

Gene: Fortunato\_41 Start: 39196, Stop: 38990, Start Num: 16  
Candidate Starts for Fortunato\_41:  
(Start: 16 @39196 has 268 MA's), (23, 39175), (29, 39148), (30, 39130), (32, 39112), (36, 39082), (38, 39076),

Gene: Fozzie\_44 Start: 39215, Stop: 39000, Start Num: 16  
Candidate Starts for Fozzie\_44:  
(Start: 16 @39215 has 268 MA's), (23, 39185), (30, 39140), (35, 39107),

Gene: Frankicide\_45 Start: 39211, Stop: 38996, Start Num: 16  
Candidate Starts for Frankicide\_45:  
(Start: 16 @39211 has 268 MA's), (23, 39181), (30, 39136), (35, 39103),

Gene: Frederick\_40 Start: 39202, Stop: 38996, Start Num: 16  
Candidate Starts for Frederick\_40:  
(Start: 16 @39202 has 268 MA's), (23, 39181), (29, 39154), (30, 39136), (32, 39118), (36, 39088), (38, 39082),

Gene: Fresco\_38 Start: 32837, Stop: 32601, Start Num: 12  
Candidate Starts for Fresco\_38:  
(11, 32840), (Start: 12 @32837 has 3 MA's), (Start: 16 @32816 has 268 MA's), (18, 32810), (23, 32786), (26, 32780), (37, 32690),

Gene: Freya\_44 Start: 38890, Stop: 38675, Start Num: 16  
Candidate Starts for Freya\_44:  
(Start: 16 @38890 has 268 MA's), (23, 38860), (30, 38815), (35, 38782),

Gene: FriarPreacher\_44 Start: 39217, Stop: 39002, Start Num: 16  
Candidate Starts for FriarPreacher\_44:  
(Start: 16 @39217 has 268 MA's), (23, 39187), (30, 39142),

Gene: Fringe\_45 Start: 39182, Stop: 38967, Start Num: 16  
Candidate Starts for Fringe\_45:

(3, 39284), (Start: 16 @39182 has 268 MA's), (23, 39152), (30, 39107),

Gene: FugateOSU\_44 Start: 38895, Stop: 38680, Start Num: 16

Candidate Starts for FugateOSU\_44:

(Start: 16 @38895 has 268 MA's), (23, 38865), (30, 38820),

Gene: Gareth\_44 Start: 38898, Stop: 38683, Start Num: 16

Candidate Starts for Gareth\_44:

(Start: 16 @38898 has 268 MA's), (23, 38868), (30, 38823), (35, 38790),

Gene: GeneCoco\_45 Start: 39207, Stop: 38992, Start Num: 16

Candidate Starts for GeneCoco\_45:

(Start: 16 @39207 has 268 MA's), (23, 39177), (30, 39132), (35, 39099),

Gene: Giraffe\_45 Start: 38901, Stop: 38686, Start Num: 16

Candidate Starts for Giraffe\_45:

(3, 39003), (Start: 16 @38901 has 268 MA's), (23, 38871), (30, 38826),

Gene: Gophee\_45 Start: 39184, Stop: 38969, Start Num: 16

Candidate Starts for Gophee\_45:

(3, 39286), (Start: 16 @39184 has 268 MA's), (23, 39154), (30, 39109),

Gene: Grand2040\_44 Start: 38916, Stop: 38701, Start Num: 16

Candidate Starts for Grand2040\_44:

(Start: 16 @38916 has 268 MA's), (23, 38886), (30, 38841), (35, 38808),

Gene: Gwilliam\_46 Start: 39196, Stop: 38981, Start Num: 16

Candidate Starts for Gwilliam\_46:

(Start: 16 @39196 has 268 MA's), (23, 39166), (30, 39121),

Gene: Gyarad\_0045 Start: 39198, Stop: 38983, Start Num: 16

Candidate Starts for Gyarad\_0045:

(Start: 16 @39198 has 268 MA's), (23, 39168), (30, 39123), (35, 39090),

Gene: HSavage\_45 Start: 39202, Stop: 38987, Start Num: 16

Candidate Starts for HSavage\_45:

(Start: 16 @39202 has 268 MA's), (23, 39172), (30, 39127), (35, 39094),

Gene: Haimas\_45 Start: 39193, Stop: 38978, Start Num: 16

Candidate Starts for Haimas\_45:

(Start: 16 @39193 has 268 MA's), (23, 39163), (30, 39118),

Gene: Haleema\_44 Start: 38916, Stop: 38701, Start Num: 16

Candidate Starts for Haleema\_44:

(Start: 16 @38916 has 268 MA's), (23, 38886), (30, 38841), (35, 38808),

Gene: Hamish\_45 Start: 39185, Stop: 38970, Start Num: 16

Candidate Starts for Hamish\_45:

(Start: 16 @39185 has 268 MA's), (23, 39155), (30, 39110),

Gene: Hangman\_40 Start: 39194, Stop: 38988, Start Num: 16

Candidate Starts for Hangman\_40:

(Start: 16 @39194 has 268 MA's), (23, 39173), (29, 39146), (30, 39128), (32, 39110), (36, 39080), (38, 39074),

Gene: Hartsy\_44 Start: 39236, Stop: 39021, Start Num: 16

Candidate Starts for Hartsy\_44:

(Start: 16 @39236 has 268 MA's), (23, 39206), (30, 39161),

Gene: Harvey\_45 Start: 39211, Stop: 38996, Start Num: 16

Candidate Starts for Harvey\_45:

(3, 39313), (Start: 16 @39211 has 268 MA's), (23, 39181), (30, 39136),

Gene: Heath\_39 Start: 38801, Stop: 38595, Start Num: 16

Candidate Starts for Heath\_39:

(Start: 16 @38801 has 268 MA's), (23, 38780), (29, 38753), (30, 38735), (32, 38717), (36, 38687), (38, 38681),

Gene: Held\_45 Start: 38900, Stop: 38685, Start Num: 16

Candidate Starts for Held\_45:

(3, 39002), (Start: 16 @38900 has 268 MA's), (23, 38870), (30, 38825),

Gene: HenryJackson\_44 Start: 38916, Stop: 38701, Start Num: 16

Candidate Starts for HenryJackson\_44:

(3, 39018), (Start: 16 @38916 has 268 MA's), (23, 38886), (30, 38841),

Gene: Hertubise\_45 Start: 39207, Stop: 38992, Start Num: 16

Candidate Starts for Hertubise\_45:

(Start: 16 @39207 has 268 MA's), (23, 39177), (30, 39132),

Gene: Hetaeria\_45 Start: 39209, Stop: 38994, Start Num: 16

Candidate Starts for Hetaeria\_45:

(Start: 16 @39209 has 268 MA's), (23, 39179), (30, 39134),

Gene: HighStump\_44 Start: 38899, Stop: 38684, Start Num: 16

Candidate Starts for HighStump\_44:

(3, 39001), (Start: 16 @38899 has 268 MA's), (23, 38869), (30, 38824),

Gene: Hocus\_44 Start: 38905, Stop: 38690, Start Num: 16

Candidate Starts for Hocus\_44:

(Start: 16 @38905 has 268 MA's), (23, 38875), (30, 38830), (35, 38797),

Gene: Horchata\_45 Start: 39187, Stop: 38972, Start Num: 16

Candidate Starts for Horchata\_45:

(3, 39289), (Start: 16 @39187 has 268 MA's), (23, 39157), (30, 39112),

Gene: Hydro\_40 Start: 39211, Stop: 39005, Start Num: 16

Candidate Starts for Hydro\_40:

(Start: 16 @39211 has 268 MA's), (23, 39190), (29, 39163), (30, 39145), (32, 39127), (36, 39097), (38, 39091),

Gene: ImtiyazSitla\_44 Start: 38747, Stop: 38532, Start Num: 16

Candidate Starts for ImtiyazSitla\_44:

(Start: 16 @38747 has 268 MA's), (23, 38717), (30, 38672), (35, 38639),



Gene: Imvubu\_36 Start: 35895, Stop: 35680, Start Num: 17

Candidate Starts for Imvubu\_36:

(1, 36156), (2, 36096), (Start: 17 @35895 has 1 MA's), (19, 35886), (26, 35859), (29, 35838), (30, 35820), (36, 35772), (38, 35766),

Gene: Inchworm\_45 Start: 39185, Stop: 38970, Start Num: 16

Candidate Starts for Inchworm\_45:

(3, 39287), (Start: 16 @39185 has 268 MA's), (23, 39155), (30, 39110),

Gene: Inverness\_45 Start: 39199, Stop: 38984, Start Num: 16

Candidate Starts for Inverness\_45:

(Start: 16 @39199 has 268 MA's), (23, 39169), (30, 39124), (35, 39091),

Gene: Iridoclysis\_45 Start: 39179, Stop: 38964, Start Num: 16

Candidate Starts for Iridoclysis\_45:

(Start: 16 @39179 has 268 MA's), (23, 39149), (30, 39104),

Gene: IsaacEli\_45 Start: 39203, Stop: 38988, Start Num: 16

Candidate Starts for IsaacEli\_45:

(3, 39305), (Start: 16 @39203 has 268 MA's), (23, 39173), (30, 39128),

Gene: JAMaL\_40 Start: 39382, Stop: 39176, Start Num: 16

Candidate Starts for JAMaL\_40:

(Start: 16 @39382 has 268 MA's), (23, 39361), (29, 39334), (30, 39316), (32, 39298), (36, 39268), (38, 39262),

Gene: JDog\_45 Start: 38916, Stop: 38701, Start Num: 16

Candidate Starts for JDog\_45:

(Start: 16 @38916 has 268 MA's), (23, 38886), (30, 38841),

Gene: JacAttac\_45 Start: 39185, Stop: 38970, Start Num: 16

Candidate Starts for JacAttac\_45:

(Start: 16 @39185 has 268 MA's), (23, 39155), (30, 39110), (35, 39077),

Gene: JaguarMi\_40 Start: 38677, Stop: 38471, Start Num: 16

Candidate Starts for JaguarMi\_40:

(Start: 16 @38677 has 268 MA's), (23, 38656), (29, 38629), (30, 38611), (32, 38593), (36, 38563), (38, 38557),

Gene: JakeO\_44 Start: 38918, Stop: 38703, Start Num: 16

Candidate Starts for JakeO\_44:

(Start: 16 @38918 has 268 MA's), (23, 38888), (30, 38843),

Gene: JangoPhett\_45 Start: 39187, Stop: 38972, Start Num: 16

Candidate Starts for JangoPhett\_45:

(Start: 16 @39187 has 268 MA's), (23, 39157), (30, 39112),

Gene: Jillium\_44 Start: 38909, Stop: 38694, Start Num: 16

Candidate Starts for Jillium\_44:

(Start: 16 @38909 has 268 MA's), (23, 38879), (30, 38834),

Gene: Jiminy\_44 Start: 38753, Stop: 38538, Start Num: 16

Candidate Starts for Jiminy\_44:

(3, 38855), (Start: 16 @38753 has 268 MA's), (23, 38723), (30, 38678),

Gene: Jiraiya\_46 Start: 38906, Stop: 38691, Start Num: 16

Candidate Starts for Jiraiya\_46:

(3, 39008), (Start: 16 @38906 has 268 MA's), (23, 38876), (30, 38831),

Gene: KLucky39\_45 Start: 39197, Stop: 38982, Start Num: 16

Candidate Starts for KLucky39\_45:

(Start: 16 @39197 has 268 MA's), (23, 39167), (30, 39122), (35, 39089),

Gene: Kahve\_44 Start: 38913, Stop: 38698, Start Num: 16

Candidate Starts for Kahve\_44:

(Start: 16 @38913 has 268 MA's), (23, 38883), (30, 38838),

Gene: Kailash\_45 Start: 39251, Stop: 39036, Start Num: 16

Candidate Starts for Kailash\_45:

(Start: 16 @39251 has 268 MA's), (23, 39221), (30, 39176),

Gene: Katniss\_45 Start: 39212, Stop: 38997, Start Num: 16

Candidate Starts for Katniss\_45:

(3, 39314), (Start: 16 @39212 has 268 MA's), (23, 39182), (30, 39137),

Gene: Keitherie\_45 Start: 39250, Stop: 39035, Start Num: 16

Candidate Starts for Keitherie\_45:

(3, 39352), (Start: 16 @39250 has 268 MA's), (23, 39220), (30, 39175),

Gene: Kikipoo\_45 Start: 39203, Stop: 38988, Start Num: 16

Candidate Starts for Kikipoo\_45:

(3, 39305), (Start: 16 @39203 has 268 MA's), (23, 39173), (30, 39128),

Gene: Kimbrough\_45 Start: 38905, Stop: 38690, Start Num: 16

Candidate Starts for Kimbrough\_45:

(3, 39007), (Start: 16 @38905 has 268 MA's), (23, 38875), (30, 38830),

Gene: KingTut\_36 Start: 34574, Stop: 34359, Start Num: 16

Candidate Starts for KingTut\_36:

(Start: 16 @34574 has 268 MA's), (23, 34544), (30, 34499), (35, 34466),

Gene: KingVeVeVe\_45 Start: 39178, Stop: 38963, Start Num: 16

Candidate Starts for KingVeVeVe\_45:

(Start: 16 @39178 has 268 MA's), (23, 39148), (30, 39103),

Gene: KlimbOn\_45 Start: 39191, Stop: 38976, Start Num: 16

Candidate Starts for KlimbOn\_45:

(Start: 16 @39191 has 268 MA's), (23, 39161), (30, 39116), (35, 39083),

Gene: Kloppinator\_45 Start: 39214, Stop: 38999, Start Num: 16

Candidate Starts for Kloppinator\_45:

(3, 39316), (Start: 16 @39214 has 268 MA's), (23, 39184), (30, 39139), (35, 39106),

Gene: Kwadwo\_44 Start: 38895, Stop: 38680, Start Num: 16

Candidate Starts for Kwadwo\_44:

(Start: 16 @38895 has 268 MA's), (23, 38865), (30, 38820), (35, 38787),

Gene: Kwksand96\_44 Start: 38764, Stop: 38549, Start Num: 16  
Candidate Starts for Kwksand96\_44:  
(Start: 16 @38764 has 268 MA's), (23, 38734), (30, 38689), (35, 38656),

Gene: Labeouficaum\_44 Start: 38759, Stop: 38544, Start Num: 16  
Candidate Starts for Labeouficaum\_44:  
(Start: 16 @38759 has 268 MA's), (23, 38729), (30, 38684), (35, 38651),

Gene: LasagnaCat\_45 Start: 39197, Stop: 38982, Start Num: 16  
Candidate Starts for LasagnaCat\_45:  
(3, 39299), (Start: 16 @39197 has 268 MA's), (23, 39167), (30, 39122),

Gene: Lasso\_45 Start: 39170, Stop: 38955, Start Num: 16  
Candidate Starts for Lasso\_45:  
(Start: 16 @39170 has 268 MA's), (23, 39140), (30, 39095),

Gene: LeeLot\_45 Start: 39201, Stop: 38986, Start Num: 16  
Candidate Starts for LeeLot\_45:  
(3, 39303), (Start: 16 @39201 has 268 MA's), (23, 39171), (30, 39126),

Gene: Lego3393\_44 Start: 39206, Stop: 38991, Start Num: 16  
Candidate Starts for Lego3393\_44:  
(3, 39308), (Start: 16 @39206 has 268 MA's), (23, 39176), (30, 39131),

Gene: Legolas\_44 Start: 38911, Stop: 38696, Start Num: 16  
Candidate Starts for Legolas\_44:  
(Start: 16 @38911 has 268 MA's), (23, 38881), (30, 38836), (35, 38803),

Gene: LeiMonet\_46 Start: 38902, Stop: 38687, Start Num: 16  
Candidate Starts for LeiMonet\_46:  
(3, 39004), (Start: 16 @38902 has 268 MA's), (23, 38872), (30, 38827),

Gene: LemonSlice\_45 Start: 38898, Stop: 38683, Start Num: 16  
Candidate Starts for LemonSlice\_45:  
(3, 39000), (Start: 16 @38898 has 268 MA's), (23, 38868), (30, 38823),

Gene: Ligma\_38 Start: 32837, Stop: 32601, Start Num: 12  
Candidate Starts for Ligma\_38:  
(11, 32840), (Start: 12 @32837 has 3 MA's), (Start: 16 @32816 has 268 MA's), (18, 32810), (23, 32786), (26, 32780), (37, 32690),

Gene: Lolalove\_40 Start: 39208, Stop: 39002, Start Num: 16  
Candidate Starts for Lolalove\_40:  
(Start: 16 @39208 has 268 MA's), (23, 39187), (29, 39160), (30, 39142), (32, 39124), (36, 39094), (38, 39088),

Gene: Longacauda\_44 Start: 38903, Stop: 38688, Start Num: 16  
Candidate Starts for Longacauda\_44:  
(Start: 16 @38903 has 268 MA's), (23, 38873), (30, 38828), (35, 38795),

Gene: Lopsy\_44 Start: 38753, Stop: 38538, Start Num: 16  
Candidate Starts for Lopsy\_44:

(3, 38855), (Start: 16 @38753 has 268 MA's), (23, 38723), (30, 38678),

Gene: LostAndPhound\_44 Start: 38904, Stop: 38689, Start Num: 16

Candidate Starts for LostAndPhound\_44:

(3, 39006), (Start: 16 @38904 has 268 MA's), (23, 38874), (30, 38829),

Gene: LuckyMarjie\_44 Start: 38913, Stop: 38698, Start Num: 16

Candidate Starts for LuckyMarjie\_44:

(Start: 16 @38913 has 268 MA's), (23, 38883), (30, 38838), (35, 38805),

Gene: Lulumae\_44 Start: 38895, Stop: 38680, Start Num: 16

Candidate Starts for Lulumae\_44:

(Start: 16 @38895 has 268 MA's), (23, 38865), (30, 38820), (35, 38787),

Gene: Lulwa\_45 Start: 39182, Stop: 38967, Start Num: 16

Candidate Starts for Lulwa\_45:

(3, 39284), (Start: 16 @39182 has 268 MA's), (23, 39152), (30, 39107),

Gene: Lumine\_44 Start: 38891, Stop: 38676, Start Num: 16

Candidate Starts for Lumine\_44:

(3, 38993), (Start: 16 @38891 has 268 MA's), (23, 38861), (30, 38816),

Gene: MRabcd\_44 Start: 38895, Stop: 38680, Start Num: 16

Candidate Starts for MRabcd\_44:

(Start: 16 @38895 has 268 MA's), (23, 38865), (30, 38820), (35, 38787),

Gene: Mag7\_44 Start: 38801, Stop: 38586, Start Num: 16

Candidate Starts for Mag7\_44:

(Start: 16 @38801 has 268 MA's), (23, 38771), (30, 38726),

Gene: Magic8\_45 Start: 39236, Stop: 39021, Start Num: 16

Candidate Starts for Magic8\_45:

(Start: 16 @39236 has 268 MA's), (23, 39206), (30, 39161),

Gene: Magpie\_39 Start: 39044, Stop: 38838, Start Num: 16

Candidate Starts for Magpie\_39:

(Start: 16 @39044 has 268 MA's), (23, 39023), (29, 38996), (30, 38978), (32, 38960), (36, 38930), (38, 38924),

Gene: MakoManhole\_40 Start: 34842, Stop: 34588, Start Num: 15

Candidate Starts for MakoManhole\_40:

(4, 34884), (Start: 15 @34842 has 7 MA's), (25, 34794), (31, 34743), (33, 34725), (38, 34698),

Gene: Mana\_44 Start: 38910, Stop: 38695, Start Num: 16

Candidate Starts for Mana\_44:

(Start: 16 @38910 has 268 MA's), (23, 38880), (30, 38835), (35, 38802),

Gene: Manad\_44 Start: 38752, Stop: 38537, Start Num: 16

Candidate Starts for Manad\_44:

(3, 38854), (Start: 16 @38752 has 268 MA's), (23, 38722), (30, 38677),

Gene: Mariokart\_38 Start: 32762, Stop: 32526, Start Num: 12

Candidate Starts for Mariokart\_38:

(9, 32777), (11, 32765), (Start: 12 @32762 has 3 MA's), (23, 32711), (26, 32705), (37, 32615),

Gene: Maru\_44 Start: 38853, Stop: 38638, Start Num: 16

Candidate Starts for Maru\_44:

(Start: 16 @38853 has 268 MA's), (23, 38823), (30, 38778), (35, 38745),

Gene: Maskar\_44 Start: 38747, Stop: 38532, Start Num: 16

Candidate Starts for Maskar\_44:

(Start: 16 @38747 has 268 MA's), (23, 38717), (30, 38672), (35, 38639),

Gene: Matalotodo\_45 Start: 39196, Stop: 38981, Start Num: 16

Candidate Starts for Matalotodo\_45:

(Start: 16 @39196 has 268 MA's), (23, 39166), (30, 39121),

Gene: Mcshane\_44 Start: 38893, Stop: 38678, Start Num: 16

Candidate Starts for Mcshane\_44:

(Start: 16 @38893 has 268 MA's), (23, 38863), (30, 38818), (35, 38785),

Gene: Mecca\_44 Start: 38896, Stop: 38681, Start Num: 16

Candidate Starts for Mecca\_44:

(3, 38998), (Start: 16 @38896 has 268 MA's), (23, 38866), (30, 38821),

Gene: Megamind20\_45 Start: 38918, Stop: 38703, Start Num: 16

Candidate Starts for Megamind20\_45:

(3, 39020), (Start: 16 @38918 has 268 MA's), (23, 38888), (30, 38843),

Gene: Megatron\_45 Start: 39194, Stop: 38979, Start Num: 16

Candidate Starts for Megatron\_45:

(3, 39296), (Start: 16 @39194 has 268 MA's), (23, 39164), (30, 39119),

Gene: Melc17\_45 Start: 39191, Stop: 38976, Start Num: 16

Candidate Starts for Melc17\_45:

(Start: 16 @39191 has 268 MA's), (23, 39161), (30, 39116),

Gene: MelsMeow\_44 Start: 38797, Stop: 38582, Start Num: 16

Candidate Starts for MelsMeow\_44:

(Start: 16 @38797 has 268 MA's), (23, 38767), (30, 38722), (35, 38689),

Gene: Mesh1\_45 Start: 39208, Stop: 38993, Start Num: 16

Candidate Starts for Mesh1\_45:

(Start: 16 @39208 has 268 MA's), (23, 39178), (30, 39133),

Gene: MichaelPhcott\_44 Start: 38798, Stop: 38583, Start Num: 16

Candidate Starts for MichaelPhcott\_44:

(Start: 16 @38798 has 268 MA's), (23, 38768), (30, 38723),

Gene: Mikota\_45 Start: 39181, Stop: 38966, Start Num: 16

Candidate Starts for Mikota\_45:

(Start: 16 @39181 has 268 MA's), (23, 39151), (30, 39106), (35, 39073),

Gene: MiniBoss\_45 Start: 39187, Stop: 38972, Start Num: 16

Candidate Starts for MiniBoss\_45:

(Start: 16 @39187 has 268 MA's), (23, 39157), (30, 39112), (35, 39079),

Gene: MitKao\_45 Start: 38902, Stop: 38687, Start Num: 16

Candidate Starts for MitKao\_45:

(3, 39004), (Start: 16 @38902 has 268 MA's), (23, 38872), (30, 38827),

Gene: Mithril\_40 Start: 39212, Stop: 39006, Start Num: 16

Candidate Starts for Mithril\_40:

(Start: 16 @39212 has 268 MA's), (23, 39191), (29, 39164), (30, 39146), (32, 39128), (36, 39098), (38, 39092),

Gene: Morgushi\_45 Start: 38903, Stop: 38688, Start Num: 16

Candidate Starts for Morgushi\_45:

(Start: 16 @38903 has 268 MA's), (23, 38873), (30, 38828), (35, 38795),

Gene: Mortcellus\_42 Start: 39665, Stop: 39429, Start Num: 14

Candidate Starts for Mortcellus\_42:

(Start: 14 @39665 has 3 MA's), (26, 39608), (33, 39542), (35, 39536),

Gene: Morty\_45 Start: 39203, Stop: 38988, Start Num: 16

Candidate Starts for Morty\_45:

(3, 39305), (Start: 16 @39203 has 268 MA's), (23, 39173), (30, 39128),

Gene: Mosaic\_44 Start: 38908, Stop: 38693, Start Num: 16

Candidate Starts for Mosaic\_44:

(3, 39010), (Start: 16 @38908 has 268 MA's), (23, 38878), (30, 38833),

Gene: MossRose\_40 Start: 34821, Stop: 34567, Start Num: 15

Candidate Starts for MossRose\_40:

(4, 34863), (Start: 15 @34821 has 7 MA's), (25, 34773), (31, 34722), (33, 34704), (38, 34677),

Gene: MrPhizzler\_44 Start: 38911, Stop: 38696, Start Num: 16

Candidate Starts for MrPhizzler\_44:

(Start: 16 @38911 has 268 MA's), (23, 38881), (30, 38836), (35, 38803),

Gene: Mudslide\_40 Start: 39444, Stop: 39238, Start Num: 16

Candidate Starts for Mudslide\_40:

(Start: 16 @39444 has 268 MA's), (23, 39423), (29, 39396), (30, 39378), (32, 39360), (36, 39330), (38, 39324),

Gene: Mulan\_44 Start: 38920, Stop: 38705, Start Num: 16

Candidate Starts for Mulan\_44:

(Start: 16 @38920 has 268 MA's), (23, 38890), (30, 38845),

Gene: Murdoc\_45 Start: 39195, Stop: 38980, Start Num: 16

Candidate Starts for Murdoc\_45:

(Start: 16 @39195 has 268 MA's), (23, 39165), (30, 39120), (35, 39087),

Gene: Mutante\_44 Start: 38902, Stop: 38687, Start Num: 16

Candidate Starts for Mutante\_44:

(3, 39004), (Start: 16 @38902 has 268 MA's), (23, 38872), (30, 38827),

Gene: NHagos\_38 Start: 33445, Stop: 33185, Start Num: 15

Candidate Starts for NHagos\_38:

(5, 33478), (Start: 15 @33445 has 7 MA's), (24, 33403), (25, 33400), (31, 33349), (33, 33331), (38, 33304),

Gene: Nacho\_0045 Start: 39197, Stop: 38982, Start Num: 16

Candidate Starts for Nacho\_0045:

(3, 39299), (Start: 16 @39197 has 268 MA's), (23, 39167), (30, 39122),

Gene: Nanao\_39 Start: 38170, Stop: 37964, Start Num: 16

Candidate Starts for Nanao\_39:

(Start: 16 @38170 has 268 MA's), (23, 38149), (29, 38122), (30, 38104), (32, 38086), (36, 38056), (38, 38050), (39, 38029),

Gene: Newman\_45 Start: 39194, Stop: 38979, Start Num: 16

Candidate Starts for Newman\_45:

(Start: 16 @39194 has 268 MA's), (23, 39164), (30, 39119), (35, 39086),

Gene: Nicole21\_45 Start: 39192, Stop: 38977, Start Num: 16

Candidate Starts for Nicole21\_45:

(Start: 16 @39192 has 268 MA's), (23, 39162), (30, 39117),

Gene: Nigel\_39 Start: 38086, Stop: 37880, Start Num: 16

Candidate Starts for Nigel\_39:

(Start: 16 @38086 has 268 MA's), (23, 38065), (29, 38038), (30, 38020), (32, 38002), (36, 37972), (38, 37966),

Gene: Numberten\_45 Start: 39201, Stop: 38986, Start Num: 16

Candidate Starts for Numberten\_45:

(3, 39303), (Start: 16 @39201 has 268 MA's), (23, 39171), (30, 39126),

Gene: Nyala\_44 Start: 38894, Stop: 38679, Start Num: 16

Candidate Starts for Nyala\_44:

(3, 38996), (Start: 16 @38894 has 268 MA's), (23, 38864), (30, 38819),

Gene: OSmaximus\_45 Start: 39236, Stop: 39021, Start Num: 16

Candidate Starts for OSmaximus\_45:

(Start: 16 @39236 has 268 MA's), (23, 39206), (30, 39161), (35, 39128),

Gene: Olak\_45 Start: 38897, Stop: 38682, Start Num: 16

Candidate Starts for Olak\_45:

(3, 38999), (Start: 16 @38897 has 268 MA's), (23, 38867), (30, 38822),

Gene: Oline\_44 Start: 38763, Stop: 38548, Start Num: 16

Candidate Starts for Oline\_44:

(3, 38865), (Start: 16 @38763 has 268 MA's), (23, 38733), (30, 38688),

Gene: Olive\_45 Start: 39184, Stop: 38969, Start Num: 16

Candidate Starts for Olive\_45:

(3, 39286), (Start: 16 @39184 has 268 MA's), (23, 39154), (30, 39109),

Gene: OliverWalter\_45 Start: 39206, Stop: 38991, Start Num: 16

Candidate Starts for OliverWalter\_45:

(Start: 16 @39206 has 268 MA's), (23, 39176), (30, 39131),

Gene: Omniscient\_45 Start: 39203, Stop: 38988, Start Num: 16  
Candidate Starts for Omniscient\_45:  
(3, 39305), (Start: 16 @39203 has 268 MA's), (23, 39173), (30, 39128),

Gene: Oosterbaan\_45 Start: 39194, Stop: 38979, Start Num: 16  
Candidate Starts for Oosterbaan\_45:  
(Start: 16 @39194 has 268 MA's), (23, 39164), (30, 39119),

Gene: Orfeu\_45 Start: 38902, Stop: 38687, Start Num: 16  
Candidate Starts for Orfeu\_45:  
(Start: 16 @38902 has 268 MA's), (23, 38872), (30, 38827), (35, 38794),

Gene: Orion\_45 Start: 39192, Stop: 38977, Start Num: 16  
Candidate Starts for Orion\_45:  
(3, 39294), (Start: 16 @39192 has 268 MA's), (23, 39162), (30, 39117),

Gene: Orwigg\_45 Start: 38890, Stop: 38675, Start Num: 16  
Candidate Starts for Orwigg\_45:  
(Start: 16 @38890 has 268 MA's), (23, 38860), (30, 38815),

Gene: PG1\_45 Start: 39205, Stop: 38990, Start Num: 16  
Candidate Starts for PG1\_45:  
(3, 39307), (Start: 16 @39205 has 268 MA's), (23, 39175), (30, 39130),

Gene: Pacifista\_47 Start: 38896, Stop: 38681, Start Num: 16  
Candidate Starts for Pacifista\_47:  
(Start: 16 @38896 has 268 MA's), (23, 38866), (30, 38821), (35, 38788),

Gene: PenguinLover67\_46 Start: 41013, Stop: 40795, Start Num: 16  
Candidate Starts for PenguinLover67\_46:  
(3, 41109), (Start: 16 @41013 has 268 MA's), (23, 40980), (29, 40953), (30, 40935), (42, 40830),

Gene: Phamished\_45 Start: 39200, Stop: 38985, Start Num: 16  
Candidate Starts for Phamished\_45:  
(Start: 16 @39200 has 268 MA's), (23, 39170), (30, 39125),

Gene: Phareon\_45 Start: 38904, Stop: 38689, Start Num: 16  
Candidate Starts for Phareon\_45:  
(Start: 16 @38904 has 268 MA's), (23, 38874), (30, 38829), (35, 38796),

Gene: PhatCats2014\_45 Start: 39209, Stop: 38994, Start Num: 16  
Candidate Starts for PhatCats2014\_45:  
(3, 39311), (Start: 16 @39209 has 268 MA's), (23, 39179), (30, 39134),

Gene: PhatLouie\_45 Start: 39198, Stop: 38983, Start Num: 16  
Candidate Starts for PhatLouie\_45:  
(Start: 16 @39198 has 268 MA's), (23, 39168), (30, 39123),

Gene: PhenghisKhan\_44 Start: 38804, Stop: 38589, Start Num: 16  
Candidate Starts for PhenghisKhan\_44:  
(Start: 16 @38804 has 268 MA's), (23, 38774), (30, 38729),

Gene: Pherdinand\_45 Start: 39200, Stop: 38985, Start Num: 16



Candidate Starts for Pherdinand\_45:  
(Start: 16 @39200 has 268 MA's), (23, 39170), (30, 39125), (35, 39092),

Gene: Phergie\_44 Start: 38795, Stop: 38580, Start Num: 16  
Candidate Starts for Phergie\_44:  
(Start: 16 @38795 has 268 MA's), (23, 38765), (30, 38720),

Gene: Phipps\_45 Start: 39171, Stop: 38956, Start Num: 16  
Candidate Starts for Phipps\_45:  
(Start: 16 @39171 has 268 MA's), (23, 39141), (30, 39096),

Gene: Phleuron\_44 Start: 38801, Stop: 38586, Start Num: 16  
Candidate Starts for Phleuron\_44:  
(Start: 16 @38801 has 268 MA's), (23, 38771), (30, 38726),

Gene: PhrankReynolds\_43 Start: 38801, Stop: 38586, Start Num: 16  
Candidate Starts for PhrankReynolds\_43:  
(Start: 16 @38801 has 268 MA's), (23, 38771), (30, 38726),

Gene: PhrodoBaggins\_44 Start: 39188, Stop: 38973, Start Num: 16  
Candidate Starts for PhrodoBaggins\_44:  
(3, 39290), (Start: 16 @39188 has 268 MA's), (23, 39158), (30, 39113),

Gene: Phunky\_45 Start: 39201, Stop: 38986, Start Num: 16  
Candidate Starts for Phunky\_45:  
(Start: 16 @39201 has 268 MA's), (23, 39171), (30, 39126), (35, 39093),

Gene: Piglet\_0044 Start: 39308, Stop: 39093, Start Num: 16  
Candidate Starts for Piglet\_0044:  
(Start: 16 @39308 has 268 MA's), (23, 39278), (30, 39233), (35, 39200),

Gene: PinheadLarry\_45 Start: 38914, Stop: 38699, Start Num: 16  
Candidate Starts for PinheadLarry\_45:  
(Start: 16 @38914 has 268 MA's), (23, 38884), (30, 38839), (35, 38806),

Gene: Pinkman\_44 Start: 38757, Stop: 38542, Start Num: 16  
Candidate Starts for Pinkman\_44:  
(Start: 16 @38757 has 268 MA's), (23, 38727), (30, 38682), (35, 38649),

Gene: Pipefish\_45 Start: 40422, Stop: 40186, Start Num: 14  
Candidate Starts for Pipefish\_45:  
(Start: 14 @40422 has 3 MA's), (26, 40365), (33, 40299), (35, 40293),

Gene: Pipsqueak\_45 Start: 39199, Stop: 38984, Start Num: 16  
Candidate Starts for Pipsqueak\_45:  
(Start: 16 @39199 has 268 MA's), (23, 39169), (30, 39124),

Gene: Placalicious\_44 Start: 38892, Stop: 38677, Start Num: 16  
Candidate Starts for Placalicious\_44:  
(Start: 16 @38892 has 268 MA's), (23, 38862), (30, 38817),

Gene: Plmatters\_45 Start: 39198, Stop: 38983, Start Num: 16  
Candidate Starts for Plmatters\_45:

(3, 39300), (Start: 16 @39198 has 268 MA's), (23, 39168), (30, 39123), (35, 39090),

Gene: Podrick\_45 Start: 39189, Stop: 38974, Start Num: 16

Candidate Starts for Podrick\_45:

(3, 39291), (Start: 16 @39189 has 268 MA's), (23, 39159), (30, 39114),

Gene: Pops\_45 Start: 39213, Stop: 38998, Start Num: 16

Candidate Starts for Pops\_45:

(3, 39315), (Start: 16 @39213 has 268 MA's), (23, 39183), (30, 39138), (35, 39105),

Gene: Poster\_39 Start: 38171, Stop: 37965, Start Num: 16

Candidate Starts for Poster\_39:

(Start: 16 @38171 has 268 MA's), (23, 38150), (29, 38123), (30, 38105), (32, 38087), (36, 38057), (38, 38051), (39, 38030),

Gene: Potter\_44 Start: 38913, Stop: 38698, Start Num: 16

Candidate Starts for Potter\_44:

(3, 39015), (Start: 16 @38913 has 268 MA's), (23, 38883), (30, 38838),

Gene: Prickles\_45 Start: 39189, Stop: 38974, Start Num: 16

Candidate Starts for Prickles\_45:

(Start: 16 @39189 has 268 MA's), (23, 39159), (30, 39114),

Gene: Prince\_41 Start: 39354, Stop: 39148, Start Num: 16

Candidate Starts for Prince\_41:

(Start: 16 @39354 has 268 MA's), (23, 39333), (29, 39306), (30, 39288), (32, 39270), (36, 39240), (38, 39234),

Gene: ProfessorX\_45 Start: 39184, Stop: 38969, Start Num: 16

Candidate Starts for ProfessorX\_45:

(3, 39286), (Start: 16 @39184 has 268 MA's), (23, 39154), (30, 39109),

Gene: Puhltonio\_45 Start: 39205, Stop: 38990, Start Num: 16

Candidate Starts for Puhltonio\_45:

(Start: 16 @39205 has 268 MA's), (23, 39175), (30, 39130), (35, 39097),

Gene: QueenBeane\_45 Start: 39195, Stop: 38980, Start Num: 16

Candidate Starts for QueenBeane\_45:

(Start: 16 @39195 has 268 MA's), (23, 39165), (30, 39120), (35, 39087),

Gene: Quesadilla\_46 Start: 40987, Stop: 40781, Start Num: 16

Candidate Starts for Quesadilla\_46:

(3, 41086), (Start: 16 @40987 has 268 MA's), (23, 40966), (30, 40921), (31, 40912),

Gene: Quisquilliae\_45 Start: 39223, Stop: 39008, Start Num: 16

Candidate Starts for Quisquilliae\_45:

(3, 39325), (Start: 16 @39223 has 268 MA's), (23, 39193), (30, 39148),

Gene: RawrgerThat\_41 Start: 39199, Stop: 38993, Start Num: 16

Candidate Starts for RawrgerThat\_41:

(Start: 16 @39199 has 268 MA's), (23, 39178), (29, 39151), (30, 39133), (32, 39115), (36, 39085), (38, 39079),

Gene: RedMaple\_44 Start: 39202, Stop: 38987, Start Num: 16  
Candidate Starts for RedMaple\_44:  
(Start: 16 @39202 has 268 MA's), (23, 39172), (30, 39127), (35, 39094),

Gene: Rich\_42 Start: 39520, Stop: 39311, Start Num: 21  
Candidate Starts for Rich\_42:  
(Start: 21 @39520 has 3 MA's), (23, 39505), (27, 39493), (30, 39460), (35, 39427),

Gene: Riggan\_45 Start: 39182, Stop: 38967, Start Num: 16  
Candidate Starts for Riggan\_45:  
(Start: 16 @39182 has 268 MA's), (23, 39152), (30, 39107),

Gene: Rimu\_47 Start: 38931, Stop: 38716, Start Num: 16  
Candidate Starts for Rimu\_47:  
(Start: 16 @38931 has 268 MA's), (23, 38901), (30, 38856), (35, 38823),

Gene: Robyn\_44 Start: 38766, Stop: 38551, Start Num: 16  
Candidate Starts for Robyn\_44:  
(3, 38868), (Start: 16 @38766 has 268 MA's), (23, 38736), (30, 38691),

Gene: Roliet\_45 Start: 39191, Stop: 38976, Start Num: 16  
Candidate Starts for Roliet\_45:  
(Start: 16 @39191 has 268 MA's), (23, 39161), (30, 39116),

Gene: Roscoe\_46 Start: 39429, Stop: 39214, Start Num: 16  
Candidate Starts for Roscoe\_46:  
(3, 39531), (Start: 16 @39429 has 268 MA's), (23, 39399), (30, 39354),

Gene: Roy17\_45 Start: 38895, Stop: 38680, Start Num: 16  
Candidate Starts for Roy17\_45:  
(Start: 16 @38895 has 268 MA's), (23, 38865), (30, 38820), (35, 38787),

Gene: Rubeelu\_32 Start: 26751, Stop: 26518, Start Num: 22  
Candidate Starts for Rubeelu\_32:  
(6, 26826), (7, 26823), (8, 26817), (20, 26760), (Start: 22 @26751 has 2 MA's), (27, 26727), (32, 26679), (40, 26601), (43, 26529),

Gene: SDcharge11\_45 Start: 39169, Stop: 38954, Start Num: 16  
Candidate Starts for SDcharge11\_45:  
(3, 39271), (Start: 16 @39169 has 268 MA's), (23, 39139), (30, 39094),

Gene: Samaymay\_45 Start: 39195, Stop: 38980, Start Num: 16  
Candidate Starts for Samaymay\_45:  
(Start: 16 @39195 has 268 MA's), (23, 39165), (30, 39120), (35, 39087),

Gene: SassyCat97\_44 Start: 38901, Stop: 38686, Start Num: 16  
Candidate Starts for SassyCat97\_44:  
(3, 39003), (Start: 16 @38901 has 268 MA's), (23, 38871), (30, 38826),

Gene: Schadenfreude\_44 Start: 38752, Stop: 38537, Start Num: 16  
Candidate Starts for Schadenfreude\_44:  
(3, 38854), (Start: 16 @38752 has 268 MA's), (23, 38722), (30, 38677),

Gene: Schueller\_45 Start: 38914, Stop: 38699, Start Num: 16

Candidate Starts for Schueller\_45:

(Start: 16 @38914 has 268 MA's), (23, 38884), (30, 38839),

Gene: Scoot17C\_45 Start: 39194, Stop: 38979, Start Num: 16

Candidate Starts for Scoot17C\_45:

(3, 39296), (Start: 16 @39194 has 268 MA's), (23, 39164), (30, 39119),

Gene: Scrick\_45 Start: 38919, Stop: 38704, Start Num: 16

Candidate Starts for Scrick\_45:

(3, 39021), (Start: 16 @38919 has 268 MA's), (23, 38889), (30, 38844),

Gene: Selr12\_46 Start: 38922, Stop: 38707, Start Num: 16

Candidate Starts for Selr12\_46:

(3, 39024), (Start: 16 @38922 has 268 MA's), (23, 38892), (30, 38847),

Gene: Serendipitous\_43 Start: 39478, Stop: 39269, Start Num: 21

Candidate Starts for Serendipitous\_43:

(Start: 21 @39478 has 3 MA's), (23, 39463), (30, 39418),

Gene: Serendipity\_45 Start: 39219, Stop: 39004, Start Num: 16

Candidate Starts for Serendipity\_45:

(Start: 16 @39219 has 268 MA's), (23, 39189), (30, 39144), (35, 39111),

Gene: Serpentine\_0045 Start: 39200, Stop: 38985, Start Num: 16

Candidate Starts for Serpentine\_0045:

(Start: 16 @39200 has 268 MA's), (23, 39170), (30, 39125), (35, 39092),

Gene: Shatter\_38 Start: 32837, Stop: 32601, Start Num: 12

Candidate Starts for Shatter\_38:

(11, 32840), (Start: 12 @32837 has 3 MA's), (Start: 16 @32816 has 268 MA's), (18, 32810), (23, 32786), (26, 32780), (37, 32690),

Gene: Sheila\_45 Start: 39237, Stop: 39022, Start Num: 16

Candidate Starts for Sheila\_45:

(Start: 16 @39237 has 268 MA's), (23, 39207), (30, 39162), (35, 39129),

Gene: ShiVal\_45 Start: 39193, Stop: 38978, Start Num: 16

Candidate Starts for ShiVal\_45:

(3, 39295), (Start: 16 @39193 has 268 MA's), (23, 39163), (30, 39118),

Gene: Sigman\_45 Start: 39185, Stop: 38970, Start Num: 16

Candidate Starts for Sigman\_45:

(Start: 16 @39185 has 268 MA's), (23, 39155), (30, 39110), (35, 39077),

Gene: Simielle\_44 Start: 38888, Stop: 38673, Start Num: 16

Candidate Starts for Simielle\_44:

(Start: 16 @38888 has 268 MA's), (23, 38858), (30, 38813), (35, 38780),

Gene: Sisko\_38 Start: 33610, Stop: 33383, Start Num: 13

Candidate Starts for Sisko\_38:

(Start: 13 @33610 has 4 MA's), (34, 33493), (41, 33424),

Gene: Skippy\_45 Start: 39183, Stop: 38968, Start Num: 16  
Candidate Starts for Skippy\_45:  
(3, 39285), (Start: 16 @39183 has 268 MA's), (23, 39153), (30, 39108),

Gene: Slatt\_45 Start: 39209, Stop: 38994, Start Num: 16  
Candidate Starts for Slatt\_45:  
(Start: 16 @39209 has 268 MA's), (23, 39179), (30, 39134),

Gene: Soile\_45 Start: 38912, Stop: 38697, Start Num: 16  
Candidate Starts for Soile\_45:  
(Start: 16 @38912 has 268 MA's), (23, 38882), (30, 38837), (35, 38804),

Gene: Solosis\_44 Start: 38910, Stop: 38695, Start Num: 16  
Candidate Starts for Solosis\_44:  
(Start: 16 @38910 has 268 MA's), (23, 38880), (30, 38835), (35, 38802),

Gene: Sophia\_44 Start: 38910, Stop: 38695, Start Num: 16  
Candidate Starts for Sophia\_44:  
(Start: 16 @38910 has 268 MA's), (23, 38880), (30, 38835),

Gene: Soto\_45 Start: 39203, Stop: 38988, Start Num: 16  
Candidate Starts for Soto\_45:  
(Start: 16 @39203 has 268 MA's), (23, 39173), (30, 39128),

Gene: Sour\_43 Start: 37566, Stop: 37306, Start Num: 15  
Candidate Starts for Sour\_43:  
(Start: 15 @37566 has 7 MA's), (26, 37515),

Gene: Spartan300\_45 Start: 39189, Stop: 38974, Start Num: 16  
Candidate Starts for Spartan300\_45:  
(3, 39291), (Start: 16 @39189 has 268 MA's), (23, 39159), (30, 39114),

Gene: Squid\_45 Start: 38901, Stop: 38686, Start Num: 16  
Candidate Starts for Squid\_45:  
(3, 39003), (Start: 16 @38901 has 268 MA's), (23, 38871), (30, 38826),

Gene: Squiggle\_45 Start: 38913, Stop: 38698, Start Num: 16  
Candidate Starts for Squiggle\_45:  
(3, 39015), (Start: 16 @38913 has 268 MA's), (23, 38883), (30, 38838),

Gene: Struggle\_44 Start: 38751, Stop: 38536, Start Num: 16  
Candidate Starts for Struggle\_44:  
(3, 38853), (Start: 16 @38751 has 268 MA's), (23, 38721), (30, 38676),

Gene: Suffolk\_45 Start: 39200, Stop: 38985, Start Num: 16  
Candidate Starts for Suffolk\_45:  
(Start: 16 @39200 has 268 MA's), (23, 39170), (30, 39125),

Gene: Surely\_45 Start: 39203, Stop: 38988, Start Num: 16  
Candidate Starts for Surely\_45:  
(Start: 16 @39203 has 268 MA's), (23, 39173), (30, 39128),

Gene: Swiphy\_47 Start: 39198, Stop: 38983, Start Num: 16

Candidate Starts for Swiphy\_47:

(Start: 16 @39198 has 268 MA's), (23, 39168), (30, 39123),

Gene: Swish\_45 Start: 39186, Stop: 38971, Start Num: 16

Candidate Starts for Swish\_45:

(Start: 16 @39186 has 268 MA's), (23, 39156), (30, 39111), (35, 39078),

Gene: TallGrassMM\_45 Start: 38825, Stop: 38610, Start Num: 16

Candidate Starts for TallGrassMM\_45:

(Start: 16 @38825 has 268 MA's), (23, 38795), (30, 38750), (35, 38717),

Gene: Telesworld\_44 Start: 38898, Stop: 38683, Start Num: 16

Candidate Starts for Telesworld\_44:

(Start: 16 @38898 has 268 MA's), (23, 38868), (30, 38823), (35, 38790),

Gene: Thora\_45 Start: 39202, Stop: 38987, Start Num: 16

Candidate Starts for Thora\_45:

(Start: 16 @39202 has 268 MA's), (23, 39172), (30, 39127),

Gene: ThreeOh3D2\_45 Start: 39200, Stop: 38985, Start Num: 16

Candidate Starts for ThreeOh3D2\_45:

(3, 39302), (Start: 16 @39200 has 268 MA's), (23, 39170), (30, 39125),

Gene: Thunderbird\_45 Start: 38906, Stop: 38691, Start Num: 16

Candidate Starts for Thunderbird\_45:

(3, 39008), (Start: 16 @38906 has 268 MA's), (23, 38876), (30, 38831),

Gene: Timmi\_44 Start: 38911, Stop: 38696, Start Num: 16

Candidate Starts for Timmi\_44:

(Start: 16 @38911 has 268 MA's), (23, 38881), (30, 38836), (35, 38803),

Gene: TomBombadil\_45 Start: 39196, Stop: 38981, Start Num: 16

Candidate Starts for TomBombadil\_45:

(3, 39298), (Start: 16 @39196 has 268 MA's), (23, 39166), (30, 39121),

Gene: Tomlarah\_45 Start: 39187, Stop: 38972, Start Num: 16

Candidate Starts for Tomlarah\_45:

(3, 39289), (Start: 16 @39187 has 268 MA's), (23, 39157), (30, 39112),

Gene: Toni\_44 Start: 38903, Stop: 38688, Start Num: 16

Candidate Starts for Toni\_44:

(Start: 16 @38903 has 268 MA's), (23, 38873), (30, 38828), (35, 38795),

Gene: Tooj\_45 Start: 39260, Stop: 39045, Start Num: 16

Candidate Starts for Tooj\_45:

(Start: 16 @39260 has 268 MA's), (23, 39230), (30, 39185),

Gene: True\_44 Start: 38900, Stop: 38685, Start Num: 16

Candidate Starts for True\_44:

(3, 39002), (Start: 16 @38900 has 268 MA's), (23, 38870), (30, 38825),

Gene: Trypo\_45 Start: 39196, Stop: 38981, Start Num: 16

Candidate Starts for Trypo\_45:

(3, 39298), (Start: 16 @39196 has 268 MA's), (23, 39166), (30, 39121),

Gene: TyrionL\_44 Start: 38759, Stop: 38544, Start Num: 16

Candidate Starts for TyrionL\_44:

(Start: 16 @38759 has 268 MA's), (23, 38729), (30, 38684), (35, 38651),

Gene: UAch1\_45 Start: 39209, Stop: 38994, Start Num: 16

Candidate Starts for UAch1\_45:

(Start: 16 @39209 has 268 MA's), (23, 39179), (30, 39134),

Gene: UncleHowie\_45 Start: 38899, Stop: 38684, Start Num: 16

Candidate Starts for UncleHowie\_45:

(3, 39001), (Start: 16 @38899 has 268 MA's), (23, 38869), (30, 38824), (35, 38791),

Gene: Usavi\_45 Start: 39200, Stop: 38985, Start Num: 16

Candidate Starts for Usavi\_45:

(Start: 16 @39200 has 268 MA's), (23, 39170), (30, 39125),

Gene: Vaishali24\_44 Start: 38861, Stop: 38646, Start Num: 16

Candidate Starts for Vaishali24\_44:

(Start: 16 @38861 has 268 MA's), (23, 38831), (30, 38786), (35, 38753),

Gene: Valjean\_45 Start: 39192, Stop: 38977, Start Num: 16

Candidate Starts for Valjean\_45:

(3, 39294), (Start: 16 @39192 has 268 MA's), (23, 39162), (30, 39117),

Gene: Vaticameos\_41 Start: 36890, Stop: 36675, Start Num: 16

Candidate Starts for Vaticameos\_41:

(Start: 16 @36890 has 268 MA's), (23, 36860), (30, 36815), (35, 36782),

Gene: Veritas\_44 Start: 38762, Stop: 38547, Start Num: 16

Candidate Starts for Veritas\_44:

(Start: 16 @38762 has 268 MA's), (23, 38732), (30, 38687),

Gene: VioletZ\_41 Start: 39270, Stop: 39064, Start Num: 16

Candidate Starts for VioletZ\_41:

(Start: 16 @39270 has 268 MA's), (23, 39249), (29, 39222), (30, 39204), (32, 39186), (36, 39156), (38, 39150),

Gene: Virapocalypse\_45 Start: 39187, Stop: 38972, Start Num: 16

Candidate Starts for Virapocalypse\_45:

(Start: 16 @39187 has 268 MA's), (23, 39157), (30, 39112),

Gene: Virgeve\_44 Start: 38967, Stop: 38752, Start Num: 16

Candidate Starts for Virgeve\_44:

(3, 39069), (Start: 16 @38967 has 268 MA's), (23, 38937), (30, 38892),

Gene: Vista\_45 Start: 39200, Stop: 38985, Start Num: 16

Candidate Starts for Vista\_45:

(Start: 16 @39200 has 268 MA's), (23, 39170), (30, 39125),

Gene: Vivaldi\_45 Start: 39229, Stop: 39014, Start Num: 16

Candidate Starts for Vivaldi\_45:

(3, 39331), (Start: 16 @39229 has 268 MA's), (23, 39199), (30, 39154),

Gene: Vortex\_45 Start: 38906, Stop: 38691, Start Num: 16

Candidate Starts for Vortex\_45:

(Start: 16 @38906 has 268 MA's), (23, 38876), (30, 38831), (35, 38798),

Gene: Waleliano\_40 Start: 39197, Stop: 38991, Start Num: 16

Candidate Starts for Waleliano\_40:

(Start: 16 @39197 has 268 MA's), (23, 39176), (29, 39149), (30, 39131), (32, 39113), (36, 39083), (38, 39077),

Gene: Wallhey\_44 Start: 38763, Stop: 38548, Start Num: 16

Candidate Starts for Wallhey\_44:

(Start: 16 @38763 has 268 MA's), (23, 38733), (30, 38688), (35, 38655),

Gene: Waterdiva\_45 Start: 39192, Stop: 38977, Start Num: 16

Candidate Starts for Waterdiva\_45:

(Start: 16 @39192 has 268 MA's), (23, 39162), (30, 39117),

Gene: Weher20\_45 Start: 39191, Stop: 38976, Start Num: 16

Candidate Starts for Weher20\_45:

(Start: 16 @39191 has 268 MA's), (23, 39161), (30, 39116),

Gene: Windsor\_44 Start: 38896, Stop: 38681, Start Num: 16

Candidate Starts for Windsor\_44:

(3, 38998), (Start: 16 @38896 has 268 MA's), (23, 38866), (30, 38821),

Gene: Wooper\_40 Start: 34857, Stop: 34591, Start Num: 15

Candidate Starts for Wooper\_40:

(4, 34902), (5, 34893), (Start: 15 @34857 has 7 MA's), (24, 34809), (25, 34806), (28, 34797), (33, 34737), (38, 34710),

Gene: Xavier\_44 Start: 38913, Stop: 38698, Start Num: 16

Candidate Starts for Xavier\_44:

(Start: 16 @38913 has 268 MA's), (23, 38883), (30, 38838), (35, 38805),

Gene: Yago84\_38 Start: 33684, Stop: 33457, Start Num: 13

Candidate Starts for Yago84\_38:

(Start: 13 @33684 has 4 MA's), (34, 33567), (41, 33498),

Gene: Yoshand\_45 Start: 39199, Stop: 38984, Start Num: 16

Candidate Starts for Yoshand\_45:

(Start: 16 @39199 has 268 MA's), (23, 39169), (30, 39124), (35, 39091),

Gene: YouGoGlencoco\_45 Start: 39194, Stop: 38979, Start Num: 16

Candidate Starts for YouGoGlencoco\_45:

(Start: 16 @39194 has 268 MA's), (23, 39164), (30, 39119),

Gene: Zaider\_46 Start: 39424, Stop: 39209, Start Num: 16

Candidate Starts for Zaider\_46:

(Start: 16 @39424 has 268 MA's), (23, 39394), (30, 39349),

Gene: Zelda\_45 Start: 39241, Stop: 39026, Start Num: 16



Candidate Starts for Zelda\_45:

(Start: 16 @39241 has 268 MA's), (23, 39211), (30, 39166),

Gene: Zemanar\_41 Start: 39200, Stop: 38994, Start Num: 16

Candidate Starts for Zemanar\_41:

(Start: 16 @39200 has 268 MA's), (23, 39179), (29, 39152), (30, 39134), (32, 39116), (36, 39086), (38, 39080),

Gene: Zonia\_45 Start: 39213, Stop: 38998, Start Num: 16

Candidate Starts for Zonia\_45:

(Start: 16 @39213 has 268 MA's), (23, 39183), (30, 39138), (35, 39105),