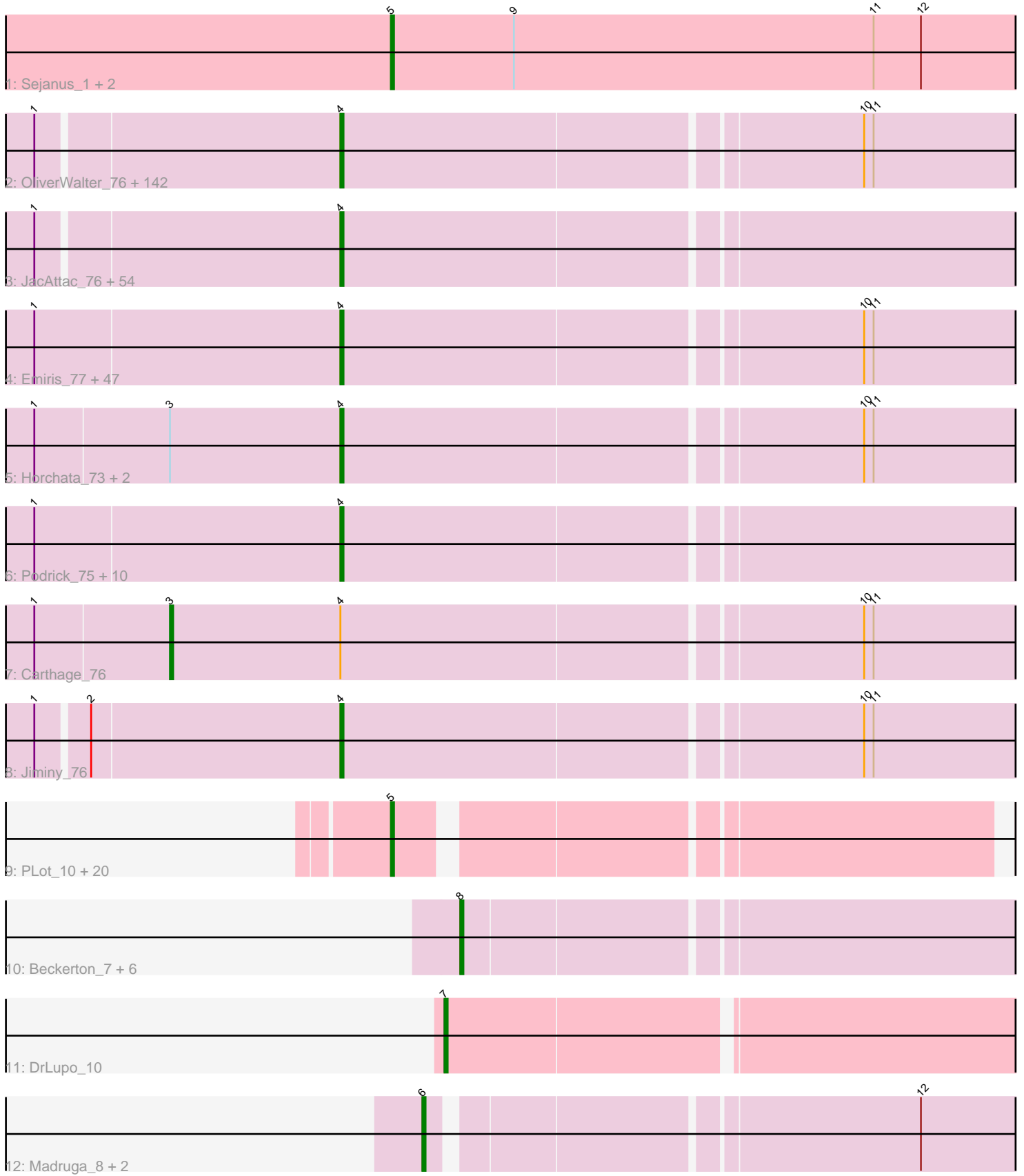


Pham 169644



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 169644 Report

This analysis was run 07/09/24 on database version 566.

Pham number 169644 has 297 members, 22 are drafts.

Phages represented in each track:

- Track 1 : Sejanus\_1, Mao1\_1, Mask\_1
- Track 2 : OliverWalter\_76, ThreeOh3D2\_78, Potter\_72, Colbert\_74, FluffyNinja\_77, Orwigg\_76, DoesntMatter\_73, Lego3393\_74, Vista\_75, PhatLouie\_78, TomBombadil\_76, Megatron\_77, Cobra\_76, Basato\_75, Toni\_76, Inverness\_74, Brilliant\_79, MrPhizzler\_75, LeiMonet\_78, Kimbrough\_77, Fang\_77, LeeLot\_75, Zelda\_76, Melc17\_73, Matalotodo\_76, AbsoluteMadLad\_75, Katniss\_78, Pipsqueak\_73, KingTut\_67, FugateOSU\_76, Swish\_77, Mutante\_77, PinheadLarry\_75, Serendipity\_76, Beaglebox\_73, Lulwa\_73, Crownjwl\_74, CharlieGBrown\_74, Fozzie\_74, HSavage\_74, LasagnaCat\_77, Selr12\_77, Keitherie\_79, TallGrassMM\_75, HighStump\_77, Windsor\_76, Mesh1\_77, Cosmolli16\_78, Tooj\_73, Vivaldi\_76, Frankicide\_75, Skippy\_77, TyrionL\_76, Labeouficaum\_76, Mosaic\_74, Yoshand\_77, Phleuron\_74, Gareth\_76, Pacifista\_77, YouGoGlencoco\_76, Dice\_76, Phareon\_74, KlimbOn\_75, ABU\_75, Spartan300\_75, Cher\_76, Anderson\_78, Buckeye\_76, Wallhey\_77, CheetO\_75, Tomlarah\_77, Telesworld\_74, Jillium\_77, Haimas\_74, Kahve\_77, Schueller\_75, Sophia\_74, Mana\_74, Serpentine\_0077, Gwilliam\_77, Piglet\_0076, Surely\_76, RedMaple\_76, Slatt\_76, DuchessDung\_74, Etaye\_75, Daka\_78, Swiphy\_79, Childish\_76, SassyCat97\_74, DelRivs\_74, Omniscient\_77, Placalicious\_75, Phunky\_74, Mecca\_76, Maru\_76, Newman\_74, Hamish\_73, Trypo\_77, Rimu\_79, Waterdiva\_77, Kwadwo\_75, Burr\_76, Hocus\_74, Riggan\_77, DaddyDaniels\_79, Zaider\_77, Bishoperium\_76, Adriana\_76, GeneCoco\_77, Valjean\_75, Phamished\_76, Schadenfreude\_76, Olive\_74, Mcshane\_75, Roscoe\_76, Scrick\_75, Giraffe\_76, Antonia\_75, BlackStallion\_77, Olak\_76, Weher20\_73, Craff\_78, Derpp\_76, Chunky\_76, Vaishali24\_77, HenryJackson\_77, Eremos\_75, Soile\_77, Banjo\_73, ProfessorX\_74, AltPhacts\_74, Pherdinand\_77, Morty\_77, Prickles\_77, JakeO\_77, Mulan\_75, MelsMeow\_75, Squiggle\_75, Soto\_73, Scoot17C\_77, Durga\_78, ShiVal\_74
- Track 3 : JacAttac\_76, Legolas\_77, KingVeVeVe\_74, Vaticameos\_73, Bluephacebaby\_75, FriarPreacher\_74, Eugenia\_77, KLucky39\_74, EmpTee\_75, PhrodoBaggins\_78, IsaacEli\_78, Andre\_77, Thora\_75, Ashraf\_77, Apizium\_75, SDcharge11\_75, LuckyMarjie\_73, Gyarad\_0075, Chaelin\_77, Grand2040\_74, Roliet\_73, Nyala\_75, Harvey\_73, Nacho\_0079, Badfish\_77, Charles1\_77, Pops\_74, Dione\_74, Kikipoo\_78, Gophee\_76, Nicole21\_77, Chah\_78, Hertubise\_76, Kwksand96\_77, Virapocalypse\_77, Hetaeria\_76, Megamind20\_76, PhatCats2014\_77, BlueHusk\_77, Plmatters\_74, Sheila\_72, Iridoclysis\_75, Kloppinator\_76, Maskar\_77, Simielle\_75, Squid\_75, Longacauda\_77, Usavi\_77, UAch1\_77, JangoPhett\_74, Oosterbaan\_76, MiniBoss\_73, ImtiyazSitla\_77,

Sigman\_76, Zonia\_77

- Track 4 : Emiris\_77, Haleema\_75, LemonSlice\_76, Murdoc\_73, DonSanchon\_72, JDog\_75, Dingo\_73, PhrankReynolds\_75, Aelin\_75, Xavier\_76, Jiraiya\_79, Phergie\_76, CampRoach\_77, Mag7\_74, MichaelPhcott\_74, Altwerkus\_75, Virgeve\_74, MRabcd\_76, Hartsy\_75, Fringe\_80, QueenBeane\_76, Kailash\_74, Coletti\_78, PhenghisKhan\_76, Veritas\_75, Manad\_75, Morgushi\_74, Chorkpop\_77, Timmi\_75, True\_74, MitKao\_76, Solosis\_74, Held\_74, CamL\_76, Puhltonio\_74, Thunderbird\_76, Lasso\_75, Chute\_76, Pinkman\_76, Daffy\_75, UncleHowie\_73, Dati\_73, Cornobble\_74, Freya\_73, Inchworm\_77, Samaymay\_76, Lopsy\_73, BatteryCK\_74
- Track 5 : Horchata\_73, DirtJuice\_76, LostAndPhound\_75
- Track 6 : Podrick\_75, Magic8\_75, Quisquillae\_78, Duggie\_76, Cannibal\_77, Phipps\_75, Struggle\_76, Lumine\_77, Ricotta\_73, Numberten\_75, Orfeu\_75
- Track 7 : Carthage\_76
- Track 8 : Jiminy\_76
- Track 9 : PLOT\_10, SirHarley\_9, KandZ\_10, Thoth\_10, Visconti\_10, WaldoWhy\_10, Helpful\_10, Mopey\_10, Delton\_10, Nova\_10, BigMama\_9, Prager\_10, Penelope2018\_10, Troll4\_10, Erk16\_10, Giuseppe\_10, Chill\_10, PBI1\_10, Adjutor\_10, Butterscotch\_10, Gumball\_9
- Track 10 : Beckerton\_7, Damien\_6, Thumb\_7, Cborch11\_7, Oaker\_7, Megatron06\_8, Phreeze\_7
- Track 11 : DrLupo\_10
- Track 12 : Madruga\_8, Patience\_10, Labelle\_10

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

The start number called the most often in the published annotations is 4, it was called in 240 of the 275 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- ABU\_75, AbsoluteMadLad\_75, Adriana\_76, Aelin\_75, AltPhacts\_74, Altwerkus\_75, Anderson\_78, Andre\_77, Antonia\_75, Apizium\_75, Ashraf\_77, Badfish\_77, Banjo\_73, Basato\_75, BatteryCK\_74, Beaglebox\_73, Bishoperium\_76, BlackStallion\_77, BlueHusk\_77, Bluephacebaby\_75, Brilliant\_79, Buckeye\_76, Burr\_76, CamL\_76, CampRoach\_77, Cannibal\_77, Chaelin\_77, Chah\_78, Charles1\_77, CharlieGBrown\_74, CheetO\_75, Cher\_76, Childish\_76, Chorkpop\_77, Chunky\_76, Chute\_76, Cobra\_76, Colbert\_74, Coletti\_78, Cornobble\_74, Cosmolli16\_78, Craff\_78, Crownjwl\_74, DaddyDaniels\_79, Daffy\_75, Daka\_78, Dati\_73, DelRivs\_74, Derpp\_76, Dice\_76, Dingo\_73, Dione\_74, DirtJuice\_76, DoesntMatter\_73, DonSanchon\_72, DuchessDung\_74, Duggie\_76, Durga\_78, Emiris\_77, EmpTee\_75, Eremos\_75, Etaye\_75, Eugenia\_77, Fang\_77, FluffyNinja\_77, Fozzie\_74, Frankicide\_75, Freya\_73, FriarPreacher\_74, Fringe\_80, FugateOSU\_76, Gareth\_76, GeneCoco\_77, Giraffe\_76, Gophee\_76, Grand2040\_74, Gwilliam\_77, Gyarad\_0075, HSavage\_74, Haimas\_74, Haleema\_75, Hamish\_73, Hartsy\_75, Harvey\_73, Held\_74, HenryJackson\_77, Hertubise\_76, Hetaeria\_76, HighStump\_77, Hocus\_74, Horchata\_73, ImtiyazSitla\_77, Inchworm\_77, Inverness\_74, Iridoclysis\_75, IsaacEli\_78, JDog\_75, JacAttac\_76, JakeO\_77, JangoPhett\_74, Jillium\_77, Jiminy\_76, Jiraiya\_79, KLucky39\_74, Kahve\_77, Kailash\_74, Katniss\_78, Keitherie\_79, Kikipoo\_78, Kimbrough\_77, KingTut\_67, KingVeVeVe\_74, KlimbOn\_75, Kloppinator\_76, Kwadwo\_75, Kwksand96\_77, Labeouficaum\_76,

LasagnaCat\_77, Lasso\_75, LeeLot\_75, Lego3393\_74, Legolas\_77, LeiMonet\_78, LemonSlice\_76, Longacauda\_77, Lopsy\_73, LostAndPhound\_75, LuckyMarjie\_73, Lulwa\_73, Lumine\_77, MRabcd\_76, Mag7\_74, Magic8\_75, Mana\_74, Manad\_75, Maru\_76, Maskar\_77, Matalotodo\_76, Mcshane\_75, Mecca\_76, Megamind20\_76, Megatron\_77, Melc17\_73, MelsMeow\_75, Mesh1\_77, MichaelPhcott\_74, MiniBoss\_73, MitKao\_76, Morgushi\_74, Morty\_77, Mosaic\_74, MrPhizzler\_75, Mulan\_75, Murdoc\_73, Mutante\_77, Nacho\_0079, Newman\_74, Nicole21\_77, Numberten\_75, Nyala\_75, Olak\_76, Olive\_74, OliverWalter\_76, Omniscient\_77, Oosterbaan\_76, Orfeu\_75, Orwigg\_76, Pacifista\_77, Phamished\_76, Phareon\_74, PhatCats2014\_77, PhatLouie\_78, PhenghisKhan\_76, Pherdinand\_77, Phergie\_76, Phipps\_75, Phleuron\_74, PhrankReynolds\_75, PhrodoBaggins\_78, Phunky\_74, Piglet\_0076, PinheadLarry\_75, Pinkman\_76, Pipsqueak\_73, Placalicious\_75, Plmatters\_74, Podrick\_75, Pops\_74, Potter\_72, Prickles\_77, ProfessorX\_74, Puhltonio\_74, QueenBeane\_76, Quisquiliae\_78, RedMaple\_76, Ricotta\_73, Riggan\_77, Rimu\_79, Roliet\_73, Roscoe\_76, SDcharge11\_75, Samaymay\_76, SassyCat97\_74, Schadenfreude\_76, Schueller\_75, Scoot17C\_77, Scrick\_75, Selr12\_77, Serendipity\_76, Serpentine\_0077, Sheila\_72, ShiVal\_74, Sigman\_76, Simielle\_75, Skippy\_77, Slatt\_76, Soile\_77, Solosis\_74, Sophia\_74, Soto\_73, Spartan300\_75, Squid\_75, Squiggle\_75, Struggle\_76, Surely\_76, Swiphy\_79, Swish\_77, TallGrassMM\_75, Telesworld\_74, Thora\_75, ThreeOh3D2\_78, Thunderbird\_76, Timmi\_75, TomBombadil\_76, Tomlarah\_77, Toni\_76, Tooj\_73, True\_74, Trypo\_77, TyrionL\_76, UAch1\_77, UncleHowie\_73, Usavi\_77, Vaishali24\_77, Valjean\_75, Vaticameos\_73, Veritas\_75, Virapocalypse\_77, Virgeve\_74, Vista\_75, Vivaldi\_76, Wallhey\_77, Waterdiva\_77, Weher20\_73, Windsor\_76, Xavier\_76, Yoshand\_77, YouGoGlencoco\_76, Zaider\_77, Zelda\_76, Zonia\_77,

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

- Carthage\_76,

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

- Adjutor\_10, Beckerton\_7, BigMama\_9, Butterscotch\_10, Cborch11\_7, Chill\_10, Damien\_6, Delton\_10, DrLupo\_10, Erk16\_10, Giuseppe\_10, Gumball\_9, Helpful\_10, KandZ\_10, Labelle\_10, Madruga\_8, Mao1\_1, Mask\_1, Megatron06\_8, Mopey\_10, Nova\_10, Oaker\_7, PBI1\_10, PLOT\_10, Patience\_10, Penelope2018\_10, Phreeze\_7, Prager\_10, Sejanus\_1, SirHarley\_9, Thoth\_10, Thumb\_7, Troll4\_10, Visconti\_10, WaldoWhy\_10,

### Summary by start number:

Start 3:

- Found in 4 of 297 ( 1.3% ) of genes in pham
- Manual Annotations of this start: 1 of 275
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Carthage\_76 (B1),

Start 4:

- Found in 262 of 297 ( 88.2% ) of genes in pham
- Manual Annotations of this start: 240 of 275
- Called 99.6% of time when present
- Phage (with cluster) where this start called: ABU\_75 (B1), AbsoluteMadLad\_75 (B1), Adriana\_76 (B1), Aelin\_75 (B1), AltPhacts\_74 (B1), Altwerkus\_75 (B1), Anderson\_78 (B1), Andre\_77 (B1), Antonia\_75 (B1), Apizium\_75 (B1), Ashraf\_77

(B1), Badfish\_77 (B1), Banjo\_73 (B1), Basato\_75 (B1), BatteryCK\_74 (B1), Beaglebox\_73 (B1), Bishoperium\_76 (B1), BlackStallion\_77 (B1), BlueHusk\_77 (B1), Bluephacebaby\_75 (B1), Brilliant\_79 (B1), Buckeye\_76 (B1), Burr\_76 (B1), CamL\_76 (B1), CampRoach\_77 (B1), Cannibal\_77 (B1), Chaelin\_77 (B1), Chah\_78 (B1), Charles1\_77 (B1), CharlieGBrown\_74 (B1), CheetO\_75 (B1), Cher\_76 (B1), Childish\_76 (B1), Chorkpop\_77 (B1), Chunky\_76 (B1), Chute\_76 (B1), Cobra\_76 (B1), Colbert\_74 (B1), Coletti\_78 (B1), Cornobble\_74 (B1), Cosmolli16\_78 (B1), Craff\_78 (B1), Crownjwl\_74 (B1), DaddyDaniels\_79 (B1), Daffy\_75 (B1), Daka\_78 (B1), Dati\_73 (B1), DelRivs\_74 (B1), Derpp\_76 (B1), Dice\_76 (B1), Dingo\_73 (B1), Dione\_74 (B1), DirtJuice\_76 (B1), DoesntMatter\_73 (B1), DonSanchon\_72 (B1), DuchessDung\_74 (B1), Duggie\_76 (B1), Durga\_78 (B1), Emiris\_77 (B1), EmpTee\_75 (B1), Eremos\_75 (B1), Etaye\_75 (B1), Eugenia\_77 (B1), Fang\_77 (B1), FluffyNinja\_77 (B1), Fozzie\_74 (B1), Frankicide\_75 (B1), Freya\_73 (B1), FriarPreacher\_74 (B1), Fringe\_80 (B1), FugateOSU\_76 (B1), Gareth\_76 (B1), GeneCoco\_77 (B1), Giraffe\_76 (B1), Gophee\_76 (B1), Grand2040\_74 (B1), Gwilliam\_77 (B1), Gyarad\_0075 (B1), HSavage\_74 (B1), Haimas\_74 (B1), Haleema\_75 (B1), Hamish\_73 (B1), Hartsy\_75 (B1), Harvey\_73 (B1), Held\_74 (B1), HenryJackson\_77 (B1), Hertubise\_76 (B1), Hetaeria\_76 (B1), HighStump\_77 (B1), Hocus\_74 (B1), Horchata\_73 (B1), ImtiyazSitla\_77 (B1), Inchworm\_77 (B1), Inverness\_74 (B1), Iridoclysis\_75 (B1), IsaacEli\_78 (B1), JDog\_75 (B1), JacAttac\_76 (B1), JakeO\_77 (B1), JangoPhett\_74 (B1), Jillium\_77 (B1), Jiminy\_76 (B1), Jiraiya\_79 (B1), KLucky39\_74 (B1), Kahve\_77 (B1), Kailash\_74 (B1), Katniss\_78 (B1), Keitherie\_79 (B1), Kikipoo\_78 (B1), Kimbrough\_77 (B1), KingTut\_67 (B1), KingVeVeVe\_74 (B1), KlimbOn\_75 (B1), Kloppinator\_76 (B1), Kwadwo\_75 (B1), Kwksand96\_77 (B1), Labeouficaum\_76 (B1), LasagnaCat\_77 (B1), Lasso\_75 (B1), LeeLot\_75 (B1), Lego3393\_74 (B1), Legolas\_77 (B1), LeiMonet\_78 (B1), LemonSlice\_76 (B1), Longacauda\_77 (B1), Lopsy\_73 (B1), LostAndPhound\_75 (B1), LuckyMarjie\_73 (B1), Lulwa\_73 (B1), Lumine\_77 (B1), MRabcd\_76 (B1), Mag7\_74 (B1), Magic8\_75 (B1), Mana\_74 (B1), Manad\_75 (B1), Maru\_76 (B1), Maskar\_77 (B1), Matalotodo\_76 (B1), Mcshane\_75 (B1), Mecca\_76 (B1), Megamind20\_76 (B1), Megatron\_77 (B1), Melc17\_73 (B1), MelsMeow\_75 (B1), Mesh1\_77 (B1), MichaelPhcott\_74 (B1), MiniBoss\_73 (B1), MitKao\_76 (B1), Morgushi\_74 (B1), Morty\_77 (B1), Mosaic\_74 (B1), MrPhizzler\_75 (B1), Mulan\_75 (B1), Murdoc\_73 (B1), Mutante\_77 (B1), Nacho\_0079 (B1), Newman\_74 (B1), Nicole21\_77 (B1), Numberten\_75 (B1), Nyala\_75 (B1), Olak\_76 (B1), Olive\_74 (B1), OliverWalter\_76 (B1), Omniscient\_77 (B1), Oosterbaan\_76 (B1), Orfeu\_75 (B1), Orwigg\_76 (B1), Pacifista\_77 (B1), Phamished\_76 (B1), Phareon\_74 (B1), PhatCats2014\_77 (B1), PhatLouie\_78 (B1), PhenghisKhan\_76 (B1), Pherdinand\_77 (B1), Phergie\_76 (B1), Phipps\_75 (B1), Phleuron\_74 (B1), PhrankReynolds\_75 (B1), PhrodoBaggins\_78 (B1), Phunky\_74 (B1), Piglet\_0076 (B1), PinheadLarry\_75 (B1), Pinkman\_76 (B1), Pipsqueak\_73 (B1), Placalicious\_75 (B1), Plmatters\_74 (B1), Podrick\_75 (B1), Pops\_74 (B1), Potter\_72 (B1), Prickles\_77 (B1), ProfessorX\_74 (B1), Puhltonio\_74 (B1), QueenBeane\_76 (B1), Quisquillae\_78 (B1), RedMaple\_76 (B1), Ricotta\_73 (B1), Riggan\_77 (B1), Rimu\_79 (B1), Roliet\_73 (B1), Roscoe\_76 (B1), SDcharge11\_75 (B1), Samaymay\_76 (B1), SassyCat97\_74 (B1), Schadenfreude\_76 (B1), Schueller\_75 (B1), Scoot17C\_77 (B1), Scrick\_75 (B1), Selr12\_77 (B1), Serendipity\_76 (B1), Serpentine\_0077 (B1), Sheila\_72 (B1), ShiVal\_74 (B1), Sigman\_76 (B1), Simielle\_75 (B1), Skippy\_77 (B1), Slatt\_76 (B1), Soile\_77 (B1), Solosis\_74 (B1), Sophia\_74 (B1), Soto\_73 (B1), Spartan300\_75 (B1), Squid\_75 (B1), Squiggle\_75 (B1), Struggle\_76 (B1), Surely\_76 (B1), Swiphy\_79 (B1), Swish\_77 (B1), TallGrassMM\_75 (B1), Telesworld\_74 (B1), Thora\_75 (B1), ThreeOh3D2\_78 (B1), Thunderbird\_76 (B1), Timmi\_75 (B1), TomBombadil\_76 (B1), Tomlarah\_77 (B1), Toni\_76 (B1), Tooj\_73 (B1), True\_74 (B1), Trypo\_77 (B1), TyrionL\_76 (B1),

UAch1\_77 (B1), UncleHowie\_73 (B1), Usavi\_77 (B1), Vaishali24\_77 (B1), Valjean\_75 (B1), Vaticameos\_73 (B1), Veritas\_75 (B1), Virapocalypse\_77 (B1), Virgeve\_74 (B1), Vista\_75 (B1), Vivaldi\_76 (B1), Wallhey\_77 (B1), Waterdiva\_77 (B1), Weher20\_73 (B1), Windsor\_76 (B1), Xavier\_76 (B1), Yoshand\_77 (B1), YouGoGlencoco\_76 (B1), Zaider\_77 (B1), Zelda\_76 (B1), Zonia\_77 (B1),

#### Start 5:

- Found in 24 of 297 ( 8.1% ) of genes in pham
- Manual Annotations of this start: 23 of 275
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Adjutor\_10 (D1), BigMama\_9 (D1), Butterscotch\_10 (D1), Chill\_10 (D1), Delton\_10 (D1), Erk16\_10 (D1), Giuseppe\_10 (D1), Gumball\_9 (D1), Helpful\_10 (D1), KandZ\_10 (D1), Mao1\_1 (AD), Mask\_1 (AD), Mopey\_10 (D1), Nova\_10 (D1), PBI1\_10 (D1), PLOT\_10 (D1), Penelope2018\_10 (D1), Prager\_10 (D1), Sejanus\_1 (AD), SirHarley\_9 (D1), Thoth\_10 (D1), Troll4\_10 (D1), Visconti\_10 (D1), WaldoWhy\_10 (D1),

#### Start 6:

- Found in 3 of 297 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 3 of 275
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Labelle\_10 (U), Madruga\_8 (U), Patience\_10 (U),

#### Start 7:

- Found in 1 of 297 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 275
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DrLupo\_10 (H2),

#### Start 8:

- Found in 7 of 297 ( 2.4% ) of genes in pham
- Manual Annotations of this start: 7 of 275
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Beckerton\_7 (H1), Cborch11\_7 (H1), Damien\_6 (H1), Megatron06\_8 (H1), Oaker\_7 (H1), Phreeze\_7 (H1), Thumb\_7 (H1),

### Summary by clusters:

There are 6 clusters represented in this pham: AD, H2, H1, U, B1, D1,

Info for manual annotations of cluster AD:

- Start number 5 was manually annotated 3 times for cluster AD.

Info for manual annotations of cluster B1:

- Start number 3 was manually annotated 1 time for cluster B1.
- Start number 4 was manually annotated 240 times for cluster B1.

Info for manual annotations of cluster D1:

- Start number 5 was manually annotated 20 times for cluster D1.

Info for manual annotations of cluster H1:

- Start number 8 was manually annotated 7 times for cluster H1.

Info for manual annotations of cluster H2:

- Start number 7 was manually annotated 1 time for cluster H2.

Info for manual annotations of cluster U:

- Start number 6 was manually annotated 3 times for cluster U.

### **Gene Information:**

Gene: ABU\_75 Start: 60750, Stop: 60986, Start Num: 4

Candidate Starts for ABU\_75:

(1, 60657), (Start: 4 @60750 has 240 MA's), (10, 60909), (11, 60912),

Gene: AbsoluteMadLad\_75 Start: 60705, Stop: 60941, Start Num: 4

Candidate Starts for AbsoluteMadLad\_75:

(1, 60612), (Start: 4 @60705 has 240 MA's), (10, 60864), (11, 60867),

Gene: Adjutor\_10 Start: 7925, Stop: 8137, Start Num: 5

Candidate Starts for Adjutor\_10:

(Start: 5 @7925 has 23 MA's),

Gene: Adriana\_76 Start: 61285, Stop: 61521, Start Num: 4

Candidate Starts for Adriana\_76:

(1, 61192), (Start: 4 @61285 has 240 MA's), (10, 61444), (11, 61447),

Gene: Aelin\_75 Start: 60228, Stop: 60464, Start Num: 4

Candidate Starts for Aelin\_75:

(1, 60132), (Start: 4 @60228 has 240 MA's), (10, 60387), (11, 60390),

Gene: AltPhacts\_74 Start: 59793, Stop: 60029, Start Num: 4

Candidate Starts for AltPhacts\_74:

(1, 59700), (Start: 4 @59793 has 240 MA's), (10, 59952), (11, 59955),

Gene: Altwerkus\_75 Start: 60069, Stop: 60305, Start Num: 4

Candidate Starts for Altwerkus\_75:

(1, 59973), (Start: 4 @60069 has 240 MA's), (10, 60228), (11, 60231),

Gene: Anderson\_78 Start: 60626, Stop: 60862, Start Num: 4

Candidate Starts for Anderson\_78:

(1, 60533), (Start: 4 @60626 has 240 MA's), (10, 60785), (11, 60788),

Gene: Andre\_77 Start: 60644, Stop: 60880, Start Num: 4

Candidate Starts for Andre\_77:

(1, 60551), (Start: 4 @60644 has 240 MA's),

Gene: Antonia\_75 Start: 60272, Stop: 60508, Start Num: 4

Candidate Starts for Antonia\_75:

(1, 60179), (Start: 4 @60272 has 240 MA's), (10, 60431), (11, 60434),

Gene: Apizium\_75 Start: 59907, Stop: 60143, Start Num: 4

Candidate Starts for Apizium\_75:

(1, 59814), (Start: 4 @59907 has 240 MA's),

Gene: Ashraf\_77 Start: 60620, Stop: 60856, Start Num: 4

Candidate Starts for Ashraf\_77:

(1, 60527), (Start: 4 @60620 has 240 MA's),

Gene: Badfish\_77 Start: 60925, Stop: 61161, Start Num: 4

Candidate Starts for Badfish\_77:

(1, 60832), (Start: 4 @60925 has 240 MA's),

Gene: Banjo\_73 Start: 60214, Stop: 60450, Start Num: 4

Candidate Starts for Banjo\_73:

(1, 60121), (Start: 4 @60214 has 240 MA's), (10, 60373), (11, 60376),

Gene: Basato\_75 Start: 60487, Stop: 60723, Start Num: 4

Candidate Starts for Basato\_75:

(1, 60394), (Start: 4 @60487 has 240 MA's), (10, 60646), (11, 60649),

Gene: BatteryCK\_74 Start: 60187, Stop: 60423, Start Num: 4

Candidate Starts for BatteryCK\_74:

(1, 60091), (Start: 4 @60187 has 240 MA's), (10, 60346), (11, 60349),

Gene: Beaglebox\_73 Start: 60325, Stop: 60561, Start Num: 4

Candidate Starts for Beaglebox\_73:

(1, 60232), (Start: 4 @60325 has 240 MA's), (10, 60484), (11, 60487),

Gene: Beckerton\_7 Start: 6251, Stop: 6451, Start Num: 8

Candidate Starts for Beckerton\_7:

(Start: 8 @6251 has 7 MA's),

Gene: BigMama\_9 Start: 7998, Stop: 8210, Start Num: 5

Candidate Starts for BigMama\_9:

(Start: 5 @7998 has 23 MA's),

Gene: Bishoperium\_76 Start: 60766, Stop: 61002, Start Num: 4

Candidate Starts for Bishoperium\_76:

(1, 60673), (Start: 4 @60766 has 240 MA's), (10, 60925), (11, 60928),

Gene: BlackStallion\_77 Start: 60634, Stop: 60870, Start Num: 4

Candidate Starts for BlackStallion\_77:

(1, 60541), (Start: 4 @60634 has 240 MA's), (10, 60793), (11, 60796),

Gene: BlueHusk\_77 Start: 60261, Stop: 60497, Start Num: 4

Candidate Starts for BlueHusk\_77:

(1, 60168), (Start: 4 @60261 has 240 MA's),

Gene: Bluephacebaby\_75 Start: 60799, Stop: 61035, Start Num: 4

Candidate Starts for Bluephacebaby\_75:

(1, 60706), (Start: 4 @60799 has 240 MA's),

Gene: Brilliant\_79 Start: 60780, Stop: 61016, Start Num: 4

Candidate Starts for Brilliant\_79:

(1, 60687), (Start: 4 @60780 has 240 MA's), (10, 60939), (11, 60942),



Gene: Buckeye\_76 Start: 61313, Stop: 61549, Start Num: 4  
Candidate Starts for Buckeye\_76:  
(1, 61220), (Start: 4 @61313 has 240 MA's), (10, 61472), (11, 61475),

Gene: Burr\_76 Start: 60232, Stop: 60468, Start Num: 4  
Candidate Starts for Burr\_76:  
(1, 60139), (Start: 4 @60232 has 240 MA's), (10, 60391), (11, 60394),

Gene: Butterscotch\_10 Start: 7985, Stop: 8197, Start Num: 5  
Candidate Starts for Butterscotch\_10:  
(Start: 5 @7985 has 23 MA's),

Gene: CamL\_76 Start: 60540, Stop: 60776, Start Num: 4  
Candidate Starts for CamL\_76:  
(1, 60444), (Start: 4 @60540 has 240 MA's), (10, 60699), (11, 60702),

Gene: CampRoach\_77 Start: 60647, Stop: 60883, Start Num: 4  
Candidate Starts for CampRoach\_77:  
(1, 60551), (Start: 4 @60647 has 240 MA's), (10, 60806), (11, 60809),

Gene: Cannibal\_77 Start: 60653, Stop: 60889, Start Num: 4  
Candidate Starts for Cannibal\_77:  
(1, 60557), (Start: 4 @60653 has 240 MA's),

Gene: Carthage\_76 Start: 60068, Stop: 60358, Start Num: 3  
Candidate Starts for Carthage\_76:  
(1, 60026), (Start: 3 @60068 has 1 MA's), (Start: 4 @60122 has 240 MA's), (10, 60281), (11, 60284),

Gene: Cborch11\_7 Start: 5716, Stop: 5916, Start Num: 8  
Candidate Starts for Cborch11\_7:  
(Start: 8 @5716 has 7 MA's),

Gene: Chaelin\_77 Start: 60780, Stop: 61016, Start Num: 4  
Candidate Starts for Chaelin\_77:  
(1, 60687), (Start: 4 @60780 has 240 MA's),

Gene: Chah\_78 Start: 60368, Stop: 60604, Start Num: 4  
Candidate Starts for Chah\_78:  
(1, 60275), (Start: 4 @60368 has 240 MA's),

Gene: Charles1\_77 Start: 60555, Stop: 60791, Start Num: 4  
Candidate Starts for Charles1\_77:  
(1, 60462), (Start: 4 @60555 has 240 MA's),

Gene: CharlieGBrown\_74 Start: 60162, Stop: 60398, Start Num: 4  
Candidate Starts for CharlieGBrown\_74:  
(1, 60069), (Start: 4 @60162 has 240 MA's), (10, 60321), (11, 60324),

Gene: CheetO\_75 Start: 60482, Stop: 60718, Start Num: 4  
Candidate Starts for CheetO\_75:  
(1, 60389), (Start: 4 @60482 has 240 MA's), (10, 60641), (11, 60644),

Gene: Cher\_76 Start: 60743, Stop: 60979, Start Num: 4  
Candidate Starts for Cher\_76:  
(1, 60650), (Start: 4 @60743 has 240 MA's), (10, 60902), (11, 60905),

Gene: Childish\_76 Start: 60944, Stop: 61180, Start Num: 4  
Candidate Starts for Childish\_76:  
(1, 60851), (Start: 4 @60944 has 240 MA's), (10, 61103), (11, 61106),

Gene: Chill\_10 Start: 7988, Stop: 8200, Start Num: 5  
Candidate Starts for Chill\_10:  
(Start: 5 @7988 has 23 MA's),

Gene: Chorkpop\_77 Start: 60407, Stop: 60643, Start Num: 4  
Candidate Starts for Chorkpop\_77:  
(1, 60311), (Start: 4 @60407 has 240 MA's), (10, 60566), (11, 60569),

Gene: Chunky\_76 Start: 60078, Stop: 60314, Start Num: 4  
Candidate Starts for Chunky\_76:  
(1, 59985), (Start: 4 @60078 has 240 MA's), (10, 60237), (11, 60240),

Gene: Chute\_76 Start: 60799, Stop: 61029, Start Num: 4  
Candidate Starts for Chute\_76:  
(1, 60703), (Start: 4 @60799 has 240 MA's), (10, 60958), (11, 60961),

Gene: Cobra\_76 Start: 60777, Stop: 61013, Start Num: 4  
Candidate Starts for Cobra\_76:  
(1, 60684), (Start: 4 @60777 has 240 MA's), (10, 60936), (11, 60939),

Gene: Colbert\_74 Start: 59827, Stop: 60063, Start Num: 4  
Candidate Starts for Colbert\_74:  
(1, 59734), (Start: 4 @59827 has 240 MA's), (10, 59986), (11, 59989),

Gene: Coletti\_78 Start: 61302, Stop: 61532, Start Num: 4  
Candidate Starts for Coletti\_78:  
(1, 61206), (Start: 4 @61302 has 240 MA's), (10, 61461), (11, 61464),

Gene: Cornobble\_74 Start: 60265, Stop: 60501, Start Num: 4  
Candidate Starts for Cornobble\_74:  
(1, 60169), (Start: 4 @60265 has 240 MA's), (10, 60424), (11, 60427),

Gene: Cosmolli16\_78 Start: 61122, Stop: 61358, Start Num: 4  
Candidate Starts for Cosmolli16\_78:  
(1, 61029), (Start: 4 @61122 has 240 MA's), (10, 61281), (11, 61284),

Gene: Craff\_78 Start: 61165, Stop: 61401, Start Num: 4  
Candidate Starts for Craff\_78:  
(1, 61072), (Start: 4 @61165 has 240 MA's), (10, 61324), (11, 61327),

Gene: Crownjwl\_74 Start: 60257, Stop: 60493, Start Num: 4  
Candidate Starts for Crownjwl\_74:  
(1, 60164), (Start: 4 @60257 has 240 MA's), (10, 60416), (11, 60419),

Gene: DaddyDaniels\_79 Start: 60889, Stop: 61125, Start Num: 4

Candidate Starts for DaddyDaniels\_79:  
(1, 60796), (Start: 4 @60889 has 240 MA's), (10, 61048), (11, 61051),

Gene: Daffy\_75 Start: 60392, Stop: 60628, Start Num: 4  
Candidate Starts for Daffy\_75:  
(1, 60296), (Start: 4 @60392 has 240 MA's), (10, 60551), (11, 60554),

Gene: Daka\_78 Start: 60750, Stop: 60986, Start Num: 4  
Candidate Starts for Daka\_78:  
(1, 60657), (Start: 4 @60750 has 240 MA's), (10, 60909), (11, 60912),

Gene: Damien\_6 Start: 5716, Stop: 5916, Start Num: 8  
Candidate Starts for Damien\_6:  
(Start: 8 @5716 has 7 MA's),

Gene: Dati\_73 Start: 60565, Stop: 60801, Start Num: 4  
Candidate Starts for Dati\_73:  
(1, 60469), (Start: 4 @60565 has 240 MA's), (10, 60724), (11, 60727),

Gene: DelRivs\_74 Start: 60205, Stop: 60441, Start Num: 4  
Candidate Starts for DelRivs\_74:  
(1, 60112), (Start: 4 @60205 has 240 MA's), (10, 60364), (11, 60367),

Gene: Delton\_10 Start: 7994, Stop: 8206, Start Num: 5  
Candidate Starts for Delton\_10:  
(Start: 5 @7994 has 23 MA's),

Gene: Derpp\_76 Start: 60311, Stop: 60547, Start Num: 4  
Candidate Starts for Derpp\_76:  
(1, 60218), (Start: 4 @60311 has 240 MA's), (10, 60470), (11, 60473),

Gene: Dice\_76 Start: 60230, Stop: 60466, Start Num: 4  
Candidate Starts for Dice\_76:  
(1, 60137), (Start: 4 @60230 has 240 MA's), (10, 60389), (11, 60392),

Gene: Dingo\_73 Start: 59784, Stop: 60020, Start Num: 4  
Candidate Starts for Dingo\_73:  
(1, 59688), (Start: 4 @59784 has 240 MA's), (10, 59943), (11, 59946),

Gene: Dione\_74 Start: 59967, Stop: 60203, Start Num: 4  
Candidate Starts for Dione\_74:  
(1, 59874), (Start: 4 @59967 has 240 MA's),

Gene: DirtJuice\_76 Start: 60535, Stop: 60771, Start Num: 4  
Candidate Starts for DirtJuice\_76:  
(1, 60439), (Start: 3 @60481 has 1 MA's), (Start: 4 @60535 has 240 MA's), (10, 60694), (11, 60697),

Gene: DoesntMatter\_73 Start: 60254, Stop: 60490, Start Num: 4  
Candidate Starts for DoesntMatter\_73:  
(1, 60161), (Start: 4 @60254 has 240 MA's), (10, 60413), (11, 60416),

Gene: DonSanchon\_72 Start: 59915, Stop: 60151, Start Num: 4  
Candidate Starts for DonSanchon\_72:

(1, 59819), (Start: 4 @59915 has 240 MA's), (10, 60074), (11, 60077),

Gene: DrLupo\_10 Start: 6204, Stop: 6410, Start Num: 7

Candidate Starts for DrLupo\_10:

(Start: 7 @6204 has 1 MA's),

Gene: DuchessDung\_74 Start: 59793, Stop: 60029, Start Num: 4

Candidate Starts for DuchessDung\_74:

(1, 59700), (Start: 4 @59793 has 240 MA's), (10, 59952), (11, 59955),

Gene: Duggie\_76 Start: 60534, Stop: 60770, Start Num: 4

Candidate Starts for Duggie\_76:

(1, 60438), (Start: 4 @60534 has 240 MA's),

Gene: Durga\_78 Start: 61014, Stop: 61250, Start Num: 4

Candidate Starts for Durga\_78:

(1, 60921), (Start: 4 @61014 has 240 MA's), (10, 61173), (11, 61176),

Gene: Emiris\_77 Start: 60926, Stop: 61162, Start Num: 4

Candidate Starts for Emiris\_77:

(1, 60830), (Start: 4 @60926 has 240 MA's), (10, 61085), (11, 61088),

Gene: EmpTee\_75 Start: 60474, Stop: 60710, Start Num: 4

Candidate Starts for EmpTee\_75:

(1, 60381), (Start: 4 @60474 has 240 MA's),

Gene: Eremos\_75 Start: 60445, Stop: 60681, Start Num: 4

Candidate Starts for Eremos\_75:

(1, 60352), (Start: 4 @60445 has 240 MA's), (10, 60604), (11, 60607),

Gene: Erk16\_10 Start: 7994, Stop: 8200, Start Num: 5

Candidate Starts for Erk16\_10:

(Start: 5 @7994 has 23 MA's),

Gene: Etaye\_75 Start: 61105, Stop: 61341, Start Num: 4

Candidate Starts for Etaye\_75:

(1, 61012), (Start: 4 @61105 has 240 MA's), (10, 61264), (11, 61267),

Gene: Eugenia\_77 Start: 61059, Stop: 61295, Start Num: 4

Candidate Starts for Eugenia\_77:

(1, 60966), (Start: 4 @61059 has 240 MA's),

Gene: Fang\_77 Start: 60765, Stop: 61001, Start Num: 4

Candidate Starts for Fang\_77:

(1, 60672), (Start: 4 @60765 has 240 MA's), (10, 60924), (11, 60927),

Gene: FluffyNinja\_77 Start: 60635, Stop: 60871, Start Num: 4

Candidate Starts for FluffyNinja\_77:

(1, 60542), (Start: 4 @60635 has 240 MA's), (10, 60794), (11, 60797),

Gene: Fozzie\_74 Start: 60962, Stop: 61198, Start Num: 4

Candidate Starts for Fozzie\_74:

(1, 60869), (Start: 4 @60962 has 240 MA's), (10, 61121), (11, 61124),

Gene: Frankicide\_75 Start: 60444, Stop: 60680, Start Num: 4  
Candidate Starts for Frankicide\_75:  
(1, 60351), (Start: 4 @60444 has 240 MA's), (10, 60603), (11, 60606),

Gene: Freya\_73 Start: 59936, Stop: 60172, Start Num: 4  
Candidate Starts for Freya\_73:  
(1, 59840), (Start: 4 @59936 has 240 MA's), (10, 60095), (11, 60098),

Gene: FriarPreacher\_74 Start: 60319, Stop: 60555, Start Num: 4  
Candidate Starts for FriarPreacher\_74:  
(1, 60226), (Start: 4 @60319 has 240 MA's),

Gene: Fringe\_80 Start: 61114, Stop: 61350, Start Num: 4  
Candidate Starts for Fringe\_80:  
(1, 61018), (Start: 4 @61114 has 240 MA's), (10, 61273), (11, 61276),

Gene: FugateOSU\_76 Start: 61257, Stop: 61493, Start Num: 4  
Candidate Starts for FugateOSU\_76:  
(1, 61164), (Start: 4 @61257 has 240 MA's), (10, 61416), (11, 61419),

Gene: Gareth\_76 Start: 60765, Stop: 61001, Start Num: 4  
Candidate Starts for Gareth\_76:  
(1, 60672), (Start: 4 @60765 has 240 MA's), (10, 60924), (11, 60927),

Gene: GeneCoco\_77 Start: 60927, Stop: 61163, Start Num: 4  
Candidate Starts for GeneCoco\_77:  
(1, 60834), (Start: 4 @60927 has 240 MA's), (10, 61086), (11, 61089),

Gene: Giraffe\_76 Start: 60760, Stop: 60996, Start Num: 4  
Candidate Starts for Giraffe\_76:  
(1, 60667), (Start: 4 @60760 has 240 MA's), (10, 60919), (11, 60922),

Gene: Giuseppe\_10 Start: 7977, Stop: 8189, Start Num: 5  
Candidate Starts for Giuseppe\_10:  
(Start: 5 @7977 has 23 MA's),

Gene: Gophee\_76 Start: 60757, Stop: 60993, Start Num: 4  
Candidate Starts for Gophee\_76:  
(1, 60664), (Start: 4 @60757 has 240 MA's),

Gene: Grand2040\_74 Start: 60735, Stop: 60971, Start Num: 4  
Candidate Starts for Grand2040\_74:  
(1, 60642), (Start: 4 @60735 has 240 MA's),

Gene: Gumball\_9 Start: 7932, Stop: 8144, Start Num: 5  
Candidate Starts for Gumball\_9:  
(Start: 5 @7932 has 23 MA's),

Gene: Gwilliam\_77 Start: 61126, Stop: 61362, Start Num: 4  
Candidate Starts for Gwilliam\_77:  
(1, 61033), (Start: 4 @61126 has 240 MA's), (10, 61285), (11, 61288),

Gene: Gyarad\_0075 Start: 60082, Stop: 60318, Start Num: 4  
Candidate Starts for Gyarad\_0075:  
(1, 59989), (Start: 4 @60082 has 240 MA's),

Gene: HSavage\_74 Start: 60272, Stop: 60508, Start Num: 4  
Candidate Starts for HSavage\_74:  
(1, 60179), (Start: 4 @60272 has 240 MA's), (10, 60431), (11, 60434),

Gene: Haimas\_74 Start: 60192, Stop: 60428, Start Num: 4  
Candidate Starts for Haimas\_74:  
(1, 60099), (Start: 4 @60192 has 240 MA's), (10, 60351), (11, 60354),

Gene: Haleema\_75 Start: 60306, Stop: 60542, Start Num: 4  
Candidate Starts for Haleema\_75:  
(1, 60210), (Start: 4 @60306 has 240 MA's), (10, 60465), (11, 60468),

Gene: Hamish\_73 Start: 60310, Stop: 60546, Start Num: 4  
Candidate Starts for Hamish\_73:  
(1, 60217), (Start: 4 @60310 has 240 MA's), (10, 60469), (11, 60472),

Gene: Hartsy\_75 Start: 60421, Stop: 60657, Start Num: 4  
Candidate Starts for Hartsy\_75:  
(1, 60325), (Start: 4 @60421 has 240 MA's), (10, 60580), (11, 60583),

Gene: Harvey\_73 Start: 60218, Stop: 60454, Start Num: 4  
Candidate Starts for Harvey\_73:  
(1, 60125), (Start: 4 @60218 has 240 MA's),

Gene: Held\_74 Start: 60213, Stop: 60449, Start Num: 4  
Candidate Starts for Held\_74:  
(1, 60117), (Start: 4 @60213 has 240 MA's), (10, 60372), (11, 60375),

Gene: Helpful\_10 Start: 7985, Stop: 8197, Start Num: 5  
Candidate Starts for Helpful\_10:  
(Start: 5 @7985 has 23 MA's),

Gene: HenryJackson\_77 Start: 60933, Stop: 61169, Start Num: 4  
Candidate Starts for HenryJackson\_77:  
(1, 60840), (Start: 4 @60933 has 240 MA's), (10, 61092), (11, 61095),

Gene: Hertubise\_76 Start: 60699, Stop: 60935, Start Num: 4  
Candidate Starts for Hertubise\_76:  
(1, 60606), (Start: 4 @60699 has 240 MA's),

Gene: Hetaeria\_76 Start: 60582, Stop: 60818, Start Num: 4  
Candidate Starts for Hetaeria\_76:  
(1, 60489), (Start: 4 @60582 has 240 MA's),

Gene: HighStump\_77 Start: 60718, Stop: 60954, Start Num: 4  
Candidate Starts for HighStump\_77:  
(1, 60625), (Start: 4 @60718 has 240 MA's), (10, 60877), (11, 60880),

Gene: Hocus\_74 Start: 60234, Stop: 60470, Start Num: 4

Candidate Starts for Hocus\_74:

(1, 60141), (Start: 4 @60234 has 240 MA's), (10, 60393), (11, 60396),

Gene: Horchata\_73 Start: 60231, Stop: 60467, Start Num: 4

Candidate Starts for Horchata\_73:

(1, 60135), (Start: 3 @60177 has 1 MA's), (Start: 4 @60231 has 240 MA's), (10, 60390), (11, 60393),

Gene: ImtiyazSitla\_77 Start: 60620, Stop: 60856, Start Num: 4

Candidate Starts for ImtiyazSitla\_77:

(1, 60527), (Start: 4 @60620 has 240 MA's),

Gene: Inchworm\_77 Start: 60607, Stop: 60843, Start Num: 4

Candidate Starts for Inchworm\_77:

(1, 60511), (Start: 4 @60607 has 240 MA's), (10, 60766), (11, 60769),

Gene: Inverness\_74 Start: 60234, Stop: 60470, Start Num: 4

Candidate Starts for Inverness\_74:

(1, 60141), (Start: 4 @60234 has 240 MA's), (10, 60393), (11, 60396),

Gene: Iridoclysis\_75 Start: 60518, Stop: 60754, Start Num: 4

Candidate Starts for Iridoclysis\_75:

(1, 60425), (Start: 4 @60518 has 240 MA's),

Gene: IsaacEli\_78 Start: 60865, Stop: 61101, Start Num: 4

Candidate Starts for IsaacEli\_78:

(1, 60772), (Start: 4 @60865 has 240 MA's),

Gene: JDog\_75 Start: 60757, Stop: 60993, Start Num: 4

Candidate Starts for JDog\_75:

(1, 60661), (Start: 4 @60757 has 240 MA's), (10, 60916), (11, 60919),

Gene: JacAttac\_76 Start: 60231, Stop: 60467, Start Num: 4

Candidate Starts for JacAttac\_76:

(1, 60138), (Start: 4 @60231 has 240 MA's),

Gene: JakeO\_77 Start: 60482, Stop: 60718, Start Num: 4

Candidate Starts for JakeO\_77:

(1, 60389), (Start: 4 @60482 has 240 MA's), (10, 60641), (11, 60644),

Gene: JangoPhett\_74 Start: 60572, Stop: 60808, Start Num: 4

Candidate Starts for JangoPhett\_74:

(1, 60479), (Start: 4 @60572 has 240 MA's),

Gene: Jillium\_77 Start: 60925, Stop: 61161, Start Num: 4

Candidate Starts for Jillium\_77:

(1, 60832), (Start: 4 @60925 has 240 MA's), (10, 61084), (11, 61087),

Gene: Jiminy\_76 Start: 60312, Stop: 60548, Start Num: 4

Candidate Starts for Jiminy\_76:

(1, 60219), (2, 60234), (Start: 4 @60312 has 240 MA's), (10, 60471), (11, 60474),

Gene: Jiraiya\_79 Start: 60517, Stop: 60753, Start Num: 4

Candidate Starts for Jiraiya\_79:

(1, 60421), (Start: 4 @60517 has 240 MA's), (10, 60676), (11, 60679),

Gene: KLucky39\_74 Start: 60121, Stop: 60357, Start Num: 4

Candidate Starts for KLucky39\_74:

(1, 60028), (Start: 4 @60121 has 240 MA's),

Gene: Kahve\_77 Start: 60930, Stop: 61166, Start Num: 4

Candidate Starts for Kahve\_77:

(1, 60837), (Start: 4 @60930 has 240 MA's), (10, 61089), (11, 61092),

Gene: Kailash\_74 Start: 60631, Stop: 60867, Start Num: 4

Candidate Starts for Kailash\_74:

(1, 60535), (Start: 4 @60631 has 240 MA's), (10, 60790), (11, 60793),

Gene: KandZ\_10 Start: 8082, Stop: 8294, Start Num: 5

Candidate Starts for KandZ\_10:

(Start: 5 @8082 has 23 MA's),

Gene: Katniss\_78 Start: 60367, Stop: 60603, Start Num: 4

Candidate Starts for Katniss\_78:

(1, 60274), (Start: 4 @60367 has 240 MA's), (10, 60526), (11, 60529),

Gene: Keitherie\_79 Start: 60989, Stop: 61225, Start Num: 4

Candidate Starts for Keitherie\_79:

(1, 60896), (Start: 4 @60989 has 240 MA's), (10, 61148), (11, 61151),

Gene: Kikipoo\_78 Start: 60865, Stop: 61101, Start Num: 4

Candidate Starts for Kikipoo\_78:

(1, 60772), (Start: 4 @60865 has 240 MA's),

Gene: Kimbrough\_77 Start: 60810, Stop: 61046, Start Num: 4

Candidate Starts for Kimbrough\_77:

(1, 60717), (Start: 4 @60810 has 240 MA's), (10, 60969), (11, 60972),

Gene: KingTut\_67 Start: 56977, Stop: 57213, Start Num: 4

Candidate Starts for KingTut\_67:

(1, 56884), (Start: 4 @56977 has 240 MA's), (10, 57136), (11, 57139),

Gene: KingVeVeVe\_74 Start: 59771, Stop: 60007, Start Num: 4

Candidate Starts for KingVeVeVe\_74:

(1, 59678), (Start: 4 @59771 has 240 MA's),

Gene: KlimbOn\_75 Start: 60245, Stop: 60481, Start Num: 4

Candidate Starts for KlimbOn\_75:

(1, 60152), (Start: 4 @60245 has 240 MA's), (10, 60404), (11, 60407),

Gene: Kloppinator\_76 Start: 60402, Stop: 60638, Start Num: 4

Candidate Starts for Kloppinator\_76:

(1, 60309), (Start: 4 @60402 has 240 MA's),

Gene: Kwadwo\_75 Start: 60237, Stop: 60473, Start Num: 4

Candidate Starts for Kwadwo\_75:

(1, 60144), (Start: 4 @60237 has 240 MA's), (10, 60396), (11, 60399),



Gene: Kwksand96\_77 Start: 60501, Stop: 60737, Start Num: 4

Candidate Starts for Kwksand96\_77:

(1, 60408), (Start: 4 @60501 has 240 MA's),

Gene: Labelle\_10 Start: 6572, Stop: 6769, Start Num: 6

Candidate Starts for Labelle\_10:

(Start: 6 @6572 has 3 MA's), (12, 6716),

Gene: Labeouficaum\_76 Start: 60311, Stop: 60547, Start Num: 4

Candidate Starts for Labeouficaum\_76:

(1, 60218), (Start: 4 @60311 has 240 MA's), (10, 60470), (11, 60473),

Gene: LasagnaCat\_77 Start: 60616, Stop: 60852, Start Num: 4

Candidate Starts for LasagnaCat\_77:

(1, 60523), (Start: 4 @60616 has 240 MA's), (10, 60775), (11, 60778),

Gene: Lasso\_75 Start: 60467, Stop: 60703, Start Num: 4

Candidate Starts for Lasso\_75:

(1, 60371), (Start: 4 @60467 has 240 MA's), (10, 60626), (11, 60629),

Gene: LeeLot\_75 Start: 60820, Stop: 61056, Start Num: 4

Candidate Starts for LeeLot\_75:

(1, 60727), (Start: 4 @60820 has 240 MA's), (10, 60979), (11, 60982),

Gene: Lego3393\_74 Start: 60937, Stop: 61173, Start Num: 4

Candidate Starts for Lego3393\_74:

(1, 60844), (Start: 4 @60937 has 240 MA's), (10, 61096), (11, 61099),

Gene: Legolas\_77 Start: 60559, Stop: 60795, Start Num: 4

Candidate Starts for Legolas\_77:

(1, 60466), (Start: 4 @60559 has 240 MA's),

Gene: LeiMonet\_78 Start: 60697, Stop: 60933, Start Num: 4

Candidate Starts for LeiMonet\_78:

(1, 60604), (Start: 4 @60697 has 240 MA's), (10, 60856), (11, 60859),

Gene: LemonSlice\_76 Start: 60214, Stop: 60450, Start Num: 4

Candidate Starts for LemonSlice\_76:

(1, 60118), (Start: 4 @60214 has 240 MA's), (10, 60373), (11, 60376),

Gene: Longacauda\_77 Start: 60594, Stop: 60830, Start Num: 4

Candidate Starts for Longacauda\_77:

(1, 60501), (Start: 4 @60594 has 240 MA's),

Gene: Lopsy\_73 Start: 59921, Stop: 60157, Start Num: 4

Candidate Starts for Lopsy\_73:

(1, 59825), (Start: 4 @59921 has 240 MA's), (10, 60080), (11, 60083),

Gene: LostAndPhound\_75 Start: 60767, Stop: 61003, Start Num: 4

Candidate Starts for LostAndPhound\_75:

(1, 60671), (Start: 3 @60713 has 1 MA's), (Start: 4 @60767 has 240 MA's), (10, 60926), (11, 60929),

Gene: LuckyMarjie\_73 Start: 59976, Stop: 60212, Start Num: 4  
Candidate Starts for LuckyMarjie\_73:  
(1, 59883), (Start: 4 @59976 has 240 MA's),

Gene: Lulwa\_73 Start: 59588, Stop: 59824, Start Num: 4  
Candidate Starts for Lulwa\_73:  
(1, 59495), (Start: 4 @59588 has 240 MA's), (10, 59747), (11, 59750),

Gene: Lumine\_77 Start: 60414, Stop: 60650, Start Num: 4  
Candidate Starts for Lumine\_77:  
(1, 60318), (Start: 4 @60414 has 240 MA's),

Gene: MRabcd\_76 Start: 60692, Stop: 60928, Start Num: 4  
Candidate Starts for MRabcd\_76:  
(1, 60596), (Start: 4 @60692 has 240 MA's), (10, 60851), (11, 60854),

Gene: Madrug\_a\_8 Start: 6176, Stop: 6373, Start Num: 6  
Candidate Starts for Madrug\_a\_8:  
(Start: 6 @6176 has 3 MA's), (12, 6320),

Gene: Mag7\_74 Start: 60175, Stop: 60411, Start Num: 4  
Candidate Starts for Mag7\_74:  
(1, 60079), (Start: 4 @60175 has 240 MA's), (10, 60334), (11, 60337),

Gene: Magic8\_75 Start: 60539, Stop: 60775, Start Num: 4  
Candidate Starts for Magic8\_75:  
(1, 60443), (Start: 4 @60539 has 240 MA's),

Gene: Mana\_74 Start: 60380, Stop: 60616, Start Num: 4  
Candidate Starts for Mana\_74:  
(1, 60287), (Start: 4 @60380 has 240 MA's), (10, 60539), (11, 60542),

Gene: Manad\_75 Start: 60509, Stop: 60745, Start Num: 4  
Candidate Starts for Manad\_75:  
(1, 60413), (Start: 4 @60509 has 240 MA's), (10, 60668), (11, 60671),

Gene: Mao1\_1 Start: 1, Stop: 207, Start Num: 5  
Candidate Starts for Mao1\_1:  
(Start: 5 @1 has 23 MA's), (9, 40), (11, 154), (12, 169),

Gene: Maru\_76 Start: 60819, Stop: 61055, Start Num: 4  
Candidate Starts for Maru\_76:  
(1, 60726), (Start: 4 @60819 has 240 MA's), (10, 60978), (11, 60981),

Gene: Mask\_1 Start: 1, Stop: 207, Start Num: 5  
Candidate Starts for Mask\_1:  
(Start: 5 @1 has 23 MA's), (9, 40), (11, 154), (12, 169),

Gene: Maskar\_77 Start: 60620, Stop: 60856, Start Num: 4  
Candidate Starts for Maskar\_77:  
(1, 60527), (Start: 4 @60620 has 240 MA's),

Gene: Matalotodo\_76 Start: 61219, Stop: 61455, Start Num: 4

Candidate Starts for Matalotodo\_76:  
(1, 61126), (Start: 4 @61219 has 240 MA's), (10, 61378), (11, 61381),

Gene: Mcshane\_75 Start: 60238, Stop: 60474, Start Num: 4  
Candidate Starts for Mcshane\_75:  
(1, 60145), (Start: 4 @60238 has 240 MA's), (10, 60397), (11, 60400),

Gene: Mecca\_76 Start: 60791, Stop: 61027, Start Num: 4  
Candidate Starts for Mecca\_76:  
(1, 60698), (Start: 4 @60791 has 240 MA's), (10, 60950), (11, 60953),

Gene: Megamind20\_76 Start: 60220, Stop: 60456, Start Num: 4  
Candidate Starts for Megamind20\_76:  
(1, 60127), (Start: 4 @60220 has 240 MA's),

Gene: Megatron\_77 Start: 60909, Stop: 61145, Start Num: 4  
Candidate Starts for Megatron\_77:  
(1, 60816), (Start: 4 @60909 has 240 MA's), (10, 61068), (11, 61071),

Gene: Megatron06\_8 Start: 6251, Stop: 6451, Start Num: 8  
Candidate Starts for Megatron06\_8:  
(Start: 8 @6251 has 7 MA's),

Gene: Melc17\_73 Start: 60847, Stop: 61083, Start Num: 4  
Candidate Starts for Melc17\_73:  
(1, 60754), (Start: 4 @60847 has 240 MA's), (10, 61006), (11, 61009),

Gene: MelsMeow\_75 Start: 60499, Stop: 60735, Start Num: 4  
Candidate Starts for MelsMeow\_75:  
(1, 60406), (Start: 4 @60499 has 240 MA's), (10, 60658), (11, 60661),

Gene: Mesh1\_77 Start: 60955, Stop: 61191, Start Num: 4  
Candidate Starts for Mesh1\_77:  
(1, 60862), (Start: 4 @60955 has 240 MA's), (10, 61114), (11, 61117),

Gene: MichaelPhcott\_74 Start: 60172, Stop: 60408, Start Num: 4  
Candidate Starts for MichaelPhcott\_74:  
(1, 60076), (Start: 4 @60172 has 240 MA's), (10, 60331), (11, 60334),

Gene: MiniBoss\_73 Start: 59544, Stop: 59780, Start Num: 4  
Candidate Starts for MiniBoss\_73:  
(1, 59451), (Start: 4 @59544 has 240 MA's),

Gene: MitKao\_76 Start: 60392, Stop: 60628, Start Num: 4  
Candidate Starts for MitKao\_76:  
(1, 60296), (Start: 4 @60392 has 240 MA's), (10, 60551), (11, 60554),

Gene: Mopey\_10 Start: 7985, Stop: 8197, Start Num: 5  
Candidate Starts for Mopey\_10:  
(Start: 5 @7985 has 23 MA's),

Gene: Morgushi\_74 Start: 60207, Stop: 60443, Start Num: 4  
Candidate Starts for Morgushi\_74:

(1, 60111), (Start: 4 @60207 has 240 MA's), (10, 60366), (11, 60369),

Gene: Morty\_77 Start: 60800, Stop: 61036, Start Num: 4

Candidate Starts for Morty\_77:

(1, 60707), (Start: 4 @60800 has 240 MA's), (10, 60959), (11, 60962),

Gene: Mosaic\_74 Start: 60384, Stop: 60620, Start Num: 4

Candidate Starts for Mosaic\_74:

(1, 60291), (Start: 4 @60384 has 240 MA's), (10, 60543), (11, 60546),

Gene: MrPhizzler\_75 Start: 60686, Stop: 60922, Start Num: 4

Candidate Starts for MrPhizzler\_75:

(1, 60593), (Start: 4 @60686 has 240 MA's), (10, 60845), (11, 60848),

Gene: Mulan\_75 Start: 60432, Stop: 60668, Start Num: 4

Candidate Starts for Mulan\_75:

(1, 60339), (Start: 4 @60432 has 240 MA's), (10, 60591), (11, 60594),

Gene: Murdoc\_73 Start: 60496, Stop: 60732, Start Num: 4

Candidate Starts for Murdoc\_73:

(1, 60400), (Start: 4 @60496 has 240 MA's), (10, 60655), (11, 60658),

Gene: Mutante\_77 Start: 60394, Stop: 60630, Start Num: 4

Candidate Starts for Mutante\_77:

(1, 60301), (Start: 4 @60394 has 240 MA's), (10, 60553), (11, 60556),

Gene: Nacho\_0079 Start: 61291, Stop: 61527, Start Num: 4

Candidate Starts for Nacho\_0079:

(1, 61198), (Start: 4 @61291 has 240 MA's),

Gene: Newman\_74 Start: 60568, Stop: 60804, Start Num: 4

Candidate Starts for Newman\_74:

(1, 60475), (Start: 4 @60568 has 240 MA's), (10, 60727), (11, 60730),

Gene: Nicole21\_77 Start: 60527, Stop: 60763, Start Num: 4

Candidate Starts for Nicole21\_77:

(1, 60434), (Start: 4 @60527 has 240 MA's),

Gene: Nova\_10 Start: 8409, Stop: 8621, Start Num: 5

Candidate Starts for Nova\_10:

(Start: 5 @8409 has 23 MA's),

Gene: Numberten\_75 Start: 60506, Stop: 60742, Start Num: 4

Candidate Starts for Numberten\_75:

(1, 60410), (Start: 4 @60506 has 240 MA's),

Gene: Nyala\_75 Start: 60245, Stop: 60481, Start Num: 4

Candidate Starts for Nyala\_75:

(1, 60152), (Start: 4 @60245 has 240 MA's),

Gene: Oaker\_7 Start: 5972, Stop: 6172, Start Num: 8

Candidate Starts for Oaker\_7:

(Start: 8 @5972 has 7 MA's),

Gene: Olak\_76 Start: 60398, Stop: 60634, Start Num: 4  
Candidate Starts for Olak\_76:  
(1, 60305), (Start: 4 @60398 has 240 MA's), (10, 60557), (11, 60560),

Gene: Olive\_74 Start: 60464, Stop: 60700, Start Num: 4  
Candidate Starts for Olive\_74:  
(1, 60371), (Start: 4 @60464 has 240 MA's), (10, 60623), (11, 60626),

Gene: OliverWalter\_76 Start: 60717, Stop: 60953, Start Num: 4  
Candidate Starts for OliverWalter\_76:  
(1, 60624), (Start: 4 @60717 has 240 MA's), (10, 60876), (11, 60879),

Gene: Omniscient\_77 Start: 61099, Stop: 61335, Start Num: 4  
Candidate Starts for Omniscient\_77:  
(1, 61006), (Start: 4 @61099 has 240 MA's), (10, 61258), (11, 61261),

Gene: Oosterbaan\_76 Start: 60635, Stop: 60871, Start Num: 4  
Candidate Starts for Oosterbaan\_76:  
(1, 60542), (Start: 4 @60635 has 240 MA's),

Gene: Orfeu\_75 Start: 60757, Stop: 60993, Start Num: 4  
Candidate Starts for Orfeu\_75:  
(1, 60661), (Start: 4 @60757 has 240 MA's),

Gene: Orwigg\_76 Start: 60184, Stop: 60420, Start Num: 4  
Candidate Starts for Orwigg\_76:  
(1, 60091), (Start: 4 @60184 has 240 MA's), (10, 60343), (11, 60346),

Gene: PBI1\_10 Start: 7922, Stop: 8128, Start Num: 5  
Candidate Starts for PBI1\_10:  
(Start: 5 @7922 has 23 MA's),

Gene: PLOT\_10 Start: 7994, Stop: 8200, Start Num: 5  
Candidate Starts for PLOT\_10:  
(Start: 5 @7994 has 23 MA's),

Gene: Pacifista\_77 Start: 60246, Stop: 60482, Start Num: 4  
Candidate Starts for Pacifista\_77:  
(1, 60153), (Start: 4 @60246 has 240 MA's), (10, 60405), (11, 60408),

Gene: Patience\_10 Start: 7102, Stop: 7299, Start Num: 6  
Candidate Starts for Patience\_10:  
(Start: 6 @7102 has 3 MA's), (12, 7246),

Gene: Penelope2018\_10 Start: 7985, Stop: 8197, Start Num: 5  
Candidate Starts for Penelope2018\_10:  
(Start: 5 @7985 has 23 MA's),

Gene: Phamished\_76 Start: 60415, Stop: 60651, Start Num: 4  
Candidate Starts for Phamished\_76:  
(1, 60322), (Start: 4 @60415 has 240 MA's), (10, 60574), (11, 60577),

Gene: Phareon\_74 Start: 59935, Stop: 60171, Start Num: 4  
Candidate Starts for Phareon\_74:  
(1, 59842), (Start: 4 @59935 has 240 MA's), (10, 60094), (11, 60097),

Gene: PhatCats2014\_77 Start: 60921, Stop: 61157, Start Num: 4  
Candidate Starts for PhatCats2014\_77:  
(1, 60828), (Start: 4 @60921 has 240 MA's),

Gene: PhatLouie\_78 Start: 60769, Stop: 61005, Start Num: 4  
Candidate Starts for PhatLouie\_78:  
(1, 60676), (Start: 4 @60769 has 240 MA's), (10, 60928), (11, 60931),

Gene: PhenghisKhan\_76 Start: 60389, Stop: 60625, Start Num: 4  
Candidate Starts for PhenghisKhan\_76:  
(1, 60293), (Start: 4 @60389 has 240 MA's), (10, 60548), (11, 60551),

Gene: Pherdinand\_77 Start: 60637, Stop: 60873, Start Num: 4  
Candidate Starts for Pherdinand\_77:  
(1, 60544), (Start: 4 @60637 has 240 MA's), (10, 60796), (11, 60799),

Gene: Phergie\_76 Start: 60381, Stop: 60617, Start Num: 4  
Candidate Starts for Phergie\_76:  
(1, 60285), (Start: 4 @60381 has 240 MA's), (10, 60540), (11, 60543),

Gene: Phipps\_75 Start: 60471, Stop: 60707, Start Num: 4  
Candidate Starts for Phipps\_75:  
(1, 60375), (Start: 4 @60471 has 240 MA's),

Gene: Phleuron\_74 Start: 60205, Stop: 60441, Start Num: 4  
Candidate Starts for Phleuron\_74:  
(1, 60112), (Start: 4 @60205 has 240 MA's), (10, 60364), (11, 60367),

Gene: PhrankReynolds\_75 Start: 60386, Stop: 60622, Start Num: 4  
Candidate Starts for PhrankReynolds\_75:  
(1, 60290), (Start: 4 @60386 has 240 MA's), (10, 60545), (11, 60548),

Gene: Phreeze\_7 Start: 5716, Stop: 5916, Start Num: 8  
Candidate Starts for Phreeze\_7:  
(Start: 8 @5716 has 7 MA's),

Gene: PhrodoBaggins\_78 Start: 60777, Stop: 61013, Start Num: 4  
Candidate Starts for PhrodoBaggins\_78:  
(1, 60684), (Start: 4 @60777 has 240 MA's),

Gene: Phunky\_74 Start: 60268, Stop: 60504, Start Num: 4  
Candidate Starts for Phunky\_74:  
(1, 60175), (Start: 4 @60268 has 240 MA's), (10, 60427), (11, 60430),

Gene: Piglet\_0076 Start: 60893, Stop: 61129, Start Num: 4  
Candidate Starts for Piglet\_0076:  
(1, 60800), (Start: 4 @60893 has 240 MA's), (10, 61052), (11, 61055),

Gene: PinheadLarry\_75 Start: 60544, Stop: 60780, Start Num: 4

Candidate Starts for PinheadLarry\_75:  
(1, 60451), (Start: 4 @60544 has 240 MA's), (10, 60703), (11, 60706),

Gene: Pinkman\_76 Start: 60495, Stop: 60731, Start Num: 4  
Candidate Starts for Pinkman\_76:  
(1, 60399), (Start: 4 @60495 has 240 MA's), (10, 60654), (11, 60657),

Gene: Pipsqueak\_73 Start: 60224, Stop: 60460, Start Num: 4  
Candidate Starts for Pipsqueak\_73:  
(1, 60131), (Start: 4 @60224 has 240 MA's), (10, 60383), (11, 60386),

Gene: Placalicious\_75 Start: 61259, Stop: 61495, Start Num: 4  
Candidate Starts for Placalicious\_75:  
(1, 61166), (Start: 4 @61259 has 240 MA's), (10, 61418), (11, 61421),

Gene: Plmatters\_74 Start: 60221, Stop: 60457, Start Num: 4  
Candidate Starts for Plmatters\_74:  
(1, 60128), (Start: 4 @60221 has 240 MA's),

Gene: Podrick\_75 Start: 60305, Stop: 60541, Start Num: 4  
Candidate Starts for Podrick\_75:  
(1, 60209), (Start: 4 @60305 has 240 MA's),

Gene: Pops\_74 Start: 60234, Stop: 60470, Start Num: 4  
Candidate Starts for Pops\_74:  
(1, 60141), (Start: 4 @60234 has 240 MA's),

Gene: Potter\_72 Start: 60227, Stop: 60463, Start Num: 4  
Candidate Starts for Potter\_72:  
(1, 60134), (Start: 4 @60227 has 240 MA's), (10, 60386), (11, 60389),

Gene: Prager\_10 Start: 7994, Stop: 8206, Start Num: 5  
Candidate Starts for Prager\_10:  
(Start: 5 @7994 has 23 MA's),

Gene: Prickles\_77 Start: 60749, Stop: 60985, Start Num: 4  
Candidate Starts for Prickles\_77:  
(1, 60656), (Start: 4 @60749 has 240 MA's), (10, 60908), (11, 60911),

Gene: ProfessorX\_74 Start: 60265, Stop: 60501, Start Num: 4  
Candidate Starts for ProfessorX\_74:  
(1, 60172), (Start: 4 @60265 has 240 MA's), (10, 60424), (11, 60427),

Gene: Puhltonio\_74 Start: 60494, Stop: 60730, Start Num: 4  
Candidate Starts for Puhltonio\_74:  
(1, 60398), (Start: 4 @60494 has 240 MA's), (10, 60653), (11, 60656),

Gene: QueenBeane\_76 Start: 60540, Stop: 60776, Start Num: 4  
Candidate Starts for QueenBeane\_76:  
(1, 60444), (Start: 4 @60540 has 240 MA's), (10, 60699), (11, 60702),

Gene: Quisquilliae\_78 Start: 60561, Stop: 60797, Start Num: 4  
Candidate Starts for Quisquilliae\_78:

(1, 60465), (Start: 4 @60561 has 240 MA's),

Gene: RedMaple\_76 Start: 60988, Stop: 61224, Start Num: 4

Candidate Starts for RedMaple\_76:

(1, 60895), (Start: 4 @60988 has 240 MA's), (10, 61147), (11, 61150),

Gene: Ricotta\_73 Start: 60231, Stop: 60467, Start Num: 4

Candidate Starts for Ricotta\_73:

(1, 60135), (Start: 4 @60231 has 240 MA's),

Gene: Riggan\_77 Start: 60557, Stop: 60793, Start Num: 4

Candidate Starts for Riggan\_77:

(1, 60464), (Start: 4 @60557 has 240 MA's), (10, 60716), (11, 60719),

Gene: Rimu\_79 Start: 60707, Stop: 60943, Start Num: 4

Candidate Starts for Rimu\_79:

(1, 60614), (Start: 4 @60707 has 240 MA's), (10, 60866), (11, 60869),

Gene: Roliet\_73 Start: 59592, Stop: 59828, Start Num: 4

Candidate Starts for Roliet\_73:

(1, 59499), (Start: 4 @59592 has 240 MA's),

Gene: Roscoe\_76 Start: 60677, Stop: 60913, Start Num: 4

Candidate Starts for Roscoe\_76:

(1, 60584), (Start: 4 @60677 has 240 MA's), (10, 60836), (11, 60839),

Gene: SDcharge11\_75 Start: 59710, Stop: 59946, Start Num: 4

Candidate Starts for SDcharge11\_75:

(1, 59617), (Start: 4 @59710 has 240 MA's),

Gene: Samaymay\_76 Start: 60540, Stop: 60776, Start Num: 4

Candidate Starts for Samaymay\_76:

(1, 60444), (Start: 4 @60540 has 240 MA's), (10, 60699), (11, 60702),

Gene: SassyCat97\_74 Start: 60220, Stop: 60456, Start Num: 4

Candidate Starts for SassyCat97\_74:

(1, 60127), (Start: 4 @60220 has 240 MA's), (10, 60379), (11, 60382),

Gene: Schadenfreude\_76 Start: 60129, Stop: 60365, Start Num: 4

Candidate Starts for Schadenfreude\_76:

(1, 60036), (Start: 4 @60129 has 240 MA's), (10, 60288), (11, 60291),

Gene: Schueller\_75 Start: 60492, Stop: 60728, Start Num: 4

Candidate Starts for Schueller\_75:

(1, 60399), (Start: 4 @60492 has 240 MA's), (10, 60651), (11, 60654),

Gene: Scoot17C\_77 Start: 60347, Stop: 60583, Start Num: 4

Candidate Starts for Scoot17C\_77:

(1, 60254), (Start: 4 @60347 has 240 MA's), (10, 60506), (11, 60509),

Gene: Scrick\_75 Start: 60229, Stop: 60465, Start Num: 4

Candidate Starts for Scrick\_75:

(1, 60136), (Start: 4 @60229 has 240 MA's), (10, 60388), (11, 60391),



Gene: Sejanus\_1 Start: 1, Stop: 207, Start Num: 5  
Candidate Starts for Sejanus\_1:  
(Start: 5 @1 has 23 MA's), (9, 40), (11, 154), (12, 169),

Gene: Selr12\_77 Start: 60274, Stop: 60510, Start Num: 4  
Candidate Starts for Selr12\_77:  
(1, 60181), (Start: 4 @60274 has 240 MA's), (10, 60433), (11, 60436),

Gene: Serendipity\_76 Start: 60702, Stop: 60938, Start Num: 4  
Candidate Starts for Serendipity\_76:  
(1, 60609), (Start: 4 @60702 has 240 MA's), (10, 60861), (11, 60864),

Gene: Serpentine\_0077 Start: 60785, Stop: 61021, Start Num: 4  
Candidate Starts for Serpentine\_0077:  
(1, 60692), (Start: 4 @60785 has 240 MA's), (10, 60944), (11, 60947),

Gene: Sheila\_72 Start: 59623, Stop: 59859, Start Num: 4  
Candidate Starts for Sheila\_72:  
(1, 59530), (Start: 4 @59623 has 240 MA's),

Gene: ShiVal\_74 Start: 60257, Stop: 60493, Start Num: 4  
Candidate Starts for ShiVal\_74:  
(1, 60164), (Start: 4 @60257 has 240 MA's), (10, 60416), (11, 60419),

Gene: Sigman\_76 Start: 60231, Stop: 60467, Start Num: 4  
Candidate Starts for Sigman\_76:  
(1, 60138), (Start: 4 @60231 has 240 MA's),

Gene: Simielle\_75 Start: 60199, Stop: 60435, Start Num: 4  
Candidate Starts for Simielle\_75:  
(1, 60106), (Start: 4 @60199 has 240 MA's),

Gene: SirHarley\_9 Start: 7914, Stop: 8126, Start Num: 5  
Candidate Starts for SirHarley\_9:  
(Start: 5 @7914 has 23 MA's),

Gene: Skippy\_77 Start: 60626, Stop: 60862, Start Num: 4  
Candidate Starts for Skippy\_77:  
(1, 60533), (Start: 4 @60626 has 240 MA's), (10, 60785), (11, 60788),

Gene: Slatt\_76 Start: 60513, Stop: 60749, Start Num: 4  
Candidate Starts for Slatt\_76:  
(1, 60420), (Start: 4 @60513 has 240 MA's), (10, 60672), (11, 60675),

Gene: Soile\_77 Start: 60751, Stop: 60987, Start Num: 4  
Candidate Starts for Soile\_77:  
(1, 60658), (Start: 4 @60751 has 240 MA's), (10, 60910), (11, 60913),

Gene: Solosis\_74 Start: 60218, Stop: 60454, Start Num: 4  
Candidate Starts for Solosis\_74:  
(1, 60122), (Start: 4 @60218 has 240 MA's), (10, 60377), (11, 60380),

Gene: Sophia\_74 Start: 60208, Stop: 60444, Start Num: 4  
Candidate Starts for Sophia\_74:  
(1, 60115), (Start: 4 @60208 has 240 MA's), (10, 60367), (11, 60370),

Gene: Soto\_73 Start: 59751, Stop: 59987, Start Num: 4  
Candidate Starts for Soto\_73:  
(1, 59658), (Start: 4 @59751 has 240 MA's), (10, 59910), (11, 59913),

Gene: Spartan300\_75 Start: 60469, Stop: 60705, Start Num: 4  
Candidate Starts for Spartan300\_75:  
(1, 60376), (Start: 4 @60469 has 240 MA's), (10, 60628), (11, 60631),

Gene: Squid\_75 Start: 60499, Stop: 60735, Start Num: 4  
Candidate Starts for Squid\_75:  
(1, 60406), (Start: 4 @60499 has 240 MA's),

Gene: Squiggle\_75 Start: 60224, Stop: 60460, Start Num: 4  
Candidate Starts for Squiggle\_75:  
(1, 60131), (Start: 4 @60224 has 240 MA's), (10, 60383), (11, 60386),

Gene: Struggle\_76 Start: 60319, Stop: 60555, Start Num: 4  
Candidate Starts for Struggle\_76:  
(1, 60223), (Start: 4 @60319 has 240 MA's),

Gene: Surely\_76 Start: 60789, Stop: 61025, Start Num: 4  
Candidate Starts for Surely\_76:  
(1, 60696), (Start: 4 @60789 has 240 MA's), (10, 60948), (11, 60951),

Gene: Swiphy\_79 Start: 60769, Stop: 61005, Start Num: 4  
Candidate Starts for Swiphy\_79:  
(1, 60676), (Start: 4 @60769 has 240 MA's), (10, 60928), (11, 60931),

Gene: Swish\_77 Start: 60652, Stop: 60888, Start Num: 4  
Candidate Starts for Swish\_77:  
(1, 60559), (Start: 4 @60652 has 240 MA's), (10, 60811), (11, 60814),

Gene: TallGrassMM\_75 Start: 60283, Stop: 60519, Start Num: 4  
Candidate Starts for TallGrassMM\_75:  
(1, 60190), (Start: 4 @60283 has 240 MA's), (10, 60442), (11, 60445),

Gene: Telesworld\_74 Start: 60361, Stop: 60597, Start Num: 4  
Candidate Starts for Telesworld\_74:  
(1, 60268), (Start: 4 @60361 has 240 MA's), (10, 60520), (11, 60523),

Gene: Thora\_75 Start: 60738, Stop: 60974, Start Num: 4  
Candidate Starts for Thora\_75:  
(1, 60645), (Start: 4 @60738 has 240 MA's),

Gene: Thoth\_10 Start: 7982, Stop: 8194, Start Num: 5  
Candidate Starts for Thoth\_10:  
(Start: 5 @7982 has 23 MA's),

Gene: ThreeOh3D2\_78 Start: 60912, Stop: 61148, Start Num: 4

Candidate Starts for ThreeOh3D2\_78:  
(1, 60819), (Start: 4 @60912 has 240 MA's), (10, 61071), (11, 61074),

Gene: Thumb\_7 Start: 5717, Stop: 5917, Start Num: 8  
Candidate Starts for Thumb\_7:  
(Start: 8 @5717 has 7 MA's),

Gene: Thunderbird\_76 Start: 60481, Stop: 60717, Start Num: 4  
Candidate Starts for Thunderbird\_76:  
(1, 60385), (Start: 4 @60481 has 240 MA's), (10, 60640), (11, 60643),

Gene: Timmi\_75 Start: 60255, Stop: 60491, Start Num: 4  
Candidate Starts for Timmi\_75:  
(1, 60159), (Start: 4 @60255 has 240 MA's), (10, 60414), (11, 60417),

Gene: TomBombadil\_76 Start: 60782, Stop: 61018, Start Num: 4  
Candidate Starts for TomBombadil\_76:  
(1, 60689), (Start: 4 @60782 has 240 MA's), (10, 60941), (11, 60944),

Gene: Tomlarah\_77 Start: 61090, Stop: 61326, Start Num: 4  
Candidate Starts for Tomlarah\_77:  
(1, 60997), (Start: 4 @61090 has 240 MA's), (10, 61249), (11, 61252),

Gene: Toni\_76 Start: 60685, Stop: 60921, Start Num: 4  
Candidate Starts for Toni\_76:  
(1, 60592), (Start: 4 @60685 has 240 MA's), (10, 60844), (11, 60847),

Gene: Tooj\_73 Start: 59916, Stop: 60152, Start Num: 4  
Candidate Starts for Tooj\_73:  
(1, 59823), (Start: 4 @59916 has 240 MA's), (10, 60075), (11, 60078),

Gene: Troll4\_10 Start: 7986, Stop: 8198, Start Num: 5  
Candidate Starts for Troll4\_10:  
(Start: 5 @7986 has 23 MA's),

Gene: True\_74 Start: 60225, Stop: 60461, Start Num: 4  
Candidate Starts for True\_74:  
(1, 60129), (Start: 4 @60225 has 240 MA's), (10, 60384), (11, 60387),

Gene: Trypo\_77 Start: 60940, Stop: 61176, Start Num: 4  
Candidate Starts for Trypo\_77:  
(1, 60847), (Start: 4 @60940 has 240 MA's), (10, 61099), (11, 61102),

Gene: TyrionL\_76 Start: 60311, Stop: 60547, Start Num: 4  
Candidate Starts for TyrionL\_76:  
(1, 60218), (Start: 4 @60311 has 240 MA's), (10, 60470), (11, 60473),

Gene: UAch1\_77 Start: 60582, Stop: 60818, Start Num: 4  
Candidate Starts for UAch1\_77:  
(1, 60489), (Start: 4 @60582 has 240 MA's),

Gene: UncleHowie\_73 Start: 59919, Stop: 60155, Start Num: 4  
Candidate Starts for UncleHowie\_73:

(1, 59823), (Start: 4 @59919 has 240 MA's), (10, 60078), (11, 60081),

Gene: Usavi\_77 Start: 60908, Stop: 61144, Start Num: 4

Candidate Starts for Usavi\_77:

(1, 60815), (Start: 4 @60908 has 240 MA's),

Gene: Vaishali24\_77 Start: 60528, Stop: 60764, Start Num: 4

Candidate Starts for Vaishali24\_77:

(1, 60435), (Start: 4 @60528 has 240 MA's), (10, 60687), (11, 60690),

Gene: Valjean\_75 Start: 60470, Stop: 60706, Start Num: 4

Candidate Starts for Valjean\_75:

(1, 60377), (Start: 4 @60470 has 240 MA's), (10, 60629), (11, 60632),

Gene: Vaticameos\_73 Start: 58786, Stop: 59022, Start Num: 4

Candidate Starts for Vaticameos\_73:

(1, 58693), (Start: 4 @58786 has 240 MA's),

Gene: Veritas\_75 Start: 60396, Stop: 60632, Start Num: 4

Candidate Starts for Veritas\_75:

(1, 60300), (Start: 4 @60396 has 240 MA's), (10, 60555), (11, 60558),

Gene: Virapocalypse\_77 Start: 60581, Stop: 60817, Start Num: 4

Candidate Starts for Virapocalypse\_77:

(1, 60488), (Start: 4 @60581 has 240 MA's),

Gene: Virgeve\_74 Start: 60198, Stop: 60434, Start Num: 4

Candidate Starts for Virgeve\_74:

(1, 60102), (Start: 4 @60198 has 240 MA's), (10, 60357), (11, 60360),

Gene: Visconti\_10 Start: 7995, Stop: 8207, Start Num: 5

Candidate Starts for Visconti\_10:

(Start: 5 @7995 has 23 MA's),

Gene: Vista\_75 Start: 60394, Stop: 60630, Start Num: 4

Candidate Starts for Vista\_75:

(1, 60301), (Start: 4 @60394 has 240 MA's), (10, 60553), (11, 60556),

Gene: Vivaldi\_76 Start: 60678, Stop: 60914, Start Num: 4

Candidate Starts for Vivaldi\_76:

(1, 60585), (Start: 4 @60678 has 240 MA's), (10, 60837), (11, 60840),

Gene: WaldoWhy\_10 Start: 7988, Stop: 8200, Start Num: 5

Candidate Starts for WaldoWhy\_10:

(Start: 5 @7988 has 23 MA's),

Gene: Wallhey\_77 Start: 60501, Stop: 60737, Start Num: 4

Candidate Starts for Wallhey\_77:

(1, 60408), (Start: 4 @60501 has 240 MA's), (10, 60660), (11, 60663),

Gene: Waterdiva\_77 Start: 60768, Stop: 61004, Start Num: 4

Candidate Starts for Waterdiva\_77:

(1, 60675), (Start: 4 @60768 has 240 MA's), (10, 60927), (11, 60930),

Gene: Weher20\_73 Start: 60839, Stop: 61075, Start Num: 4  
Candidate Starts for Weher20\_73:  
(1, 60746), (Start: 4 @60839 has 240 MA's), (10, 60998), (11, 61001),

Gene: Windsor\_76 Start: 60784, Stop: 61020, Start Num: 4  
Candidate Starts for Windsor\_76:  
(1, 60691), (Start: 4 @60784 has 240 MA's), (10, 60943), (11, 60946),

Gene: Xavier\_76 Start: 60390, Stop: 60626, Start Num: 4  
Candidate Starts for Xavier\_76:  
(1, 60294), (Start: 4 @60390 has 240 MA's), (10, 60549), (11, 60552),

Gene: Yoshand\_77 Start: 60635, Stop: 60871, Start Num: 4  
Candidate Starts for Yoshand\_77:  
(1, 60542), (Start: 4 @60635 has 240 MA's), (10, 60794), (11, 60797),

Gene: YouGoGlencoco\_76 Start: 60509, Stop: 60745, Start Num: 4  
Candidate Starts for YouGoGlencoco\_76:  
(1, 60416), (Start: 4 @60509 has 240 MA's), (10, 60668), (11, 60671),

Gene: Zaider\_77 Start: 60710, Stop: 60946, Start Num: 4  
Candidate Starts for Zaider\_77:  
(1, 60617), (Start: 4 @60710 has 240 MA's), (10, 60869), (11, 60872),

Gene: Zelda\_76 Start: 60840, Stop: 61076, Start Num: 4  
Candidate Starts for Zelda\_76:  
(1, 60747), (Start: 4 @60840 has 240 MA's), (10, 60999), (11, 61002),

Gene: Zonia\_77 Start: 60952, Stop: 61188, Start Num: 4  
Candidate Starts for Zonia\_77:  
(1, 60859), (Start: 4 @60952 has 240 MA's),