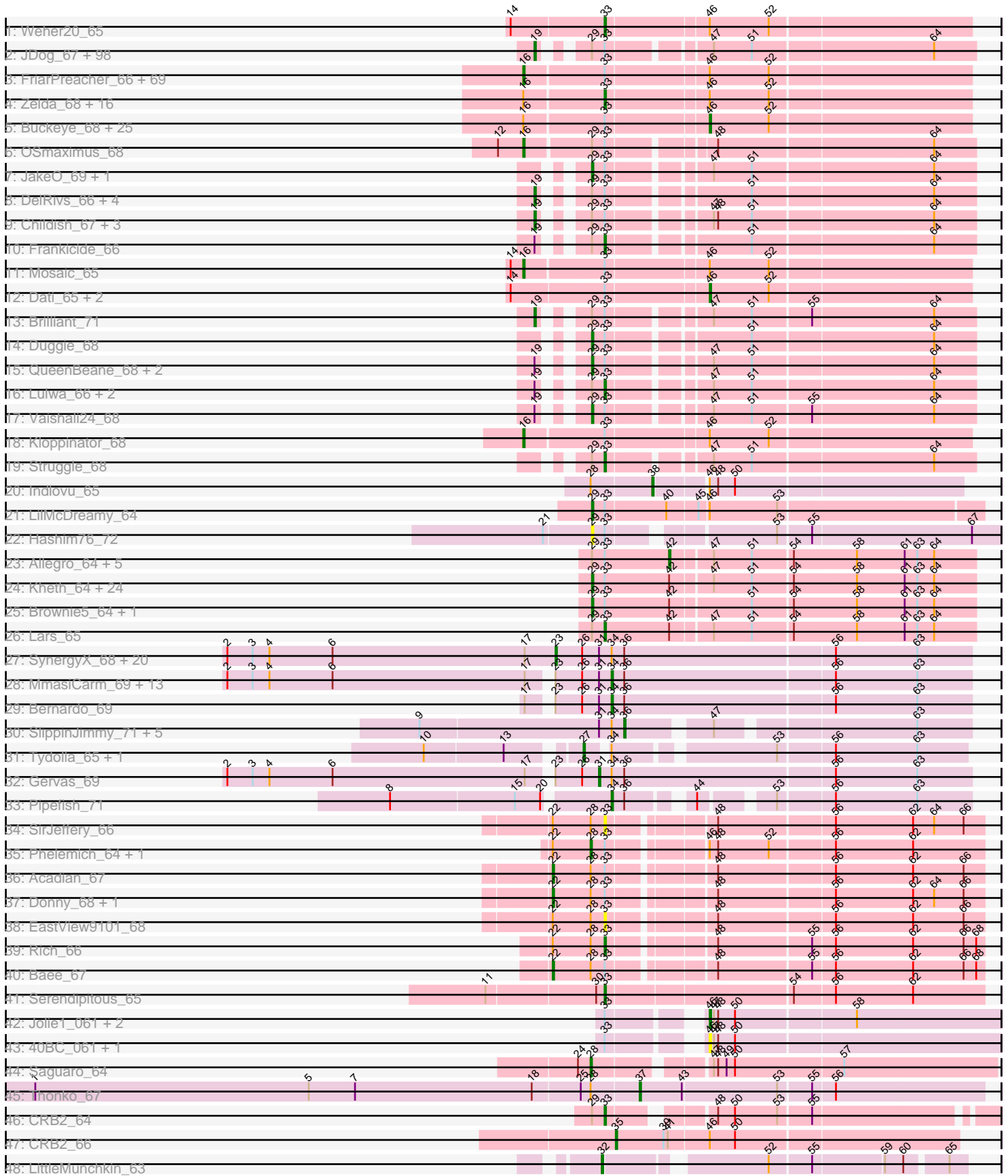


Pham 171139



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 171139 Report

This analysis was run 07/10/24 on database version 566.

Pham number 171139 has 344 members, 16 are drafts.

Phages represented in each track:

- Track 1 : Weher20\_65
- Track 2 : JDog\_67, Riggan\_69, EmpTee\_67, Orwigg\_68, LuckyMarjie\_65, Chaelin\_69, Aelin\_67, Tomlahar\_69, PG1\_67, Chah\_69, Gareth\_68, Serpentine\_0068, Nicole21\_69, Manad\_67, Simielle\_68, Waterdiva\_68, Giraffe\_68, Numberten\_67, Freya\_65, Chunky\_68, Roy17\_66, ThreeOh3D2\_69, Bishoperium\_68, Windsor\_68, Schadenfreude\_68, OliverWalter\_67, Mutante\_68, Piglet\_0068, Serendipity\_67, Mcshane\_67, KLucky39\_66, KlimbOn\_67, Altwerkus\_66, Suffolk\_66, Kikipoo\_69, Skippy\_69, ProfessorX\_66, Virapocalypse\_69, Newman\_66, Swiphy\_72, Badfish\_68, Antonia\_67, ABU\_67, Kwadwo\_67, Dione\_66, Longacauda\_69, JangoPhett\_102, DoesntMatter\_65, Toni\_68, Haleema\_67, Lulumae\_65, PhatLouie\_70, Scoot17C\_68, Sigman\_68, Colbert\_66, Megatron\_68, Hertubise\_67, Quisquiliae\_69, IsaacEli\_69, Spartan300\_67, CheetO\_67, Beaglebox\_66, Xavier\_67, Jillium\_68, Eremos\_67, True\_66, Timmi\_67, Katniss\_69, JacAttac\_68, Telesworld\_66, Charles1\_69, Phunky\_66, Omniscient\_69, PhatCats2014\_68, Hartsy\_67, Vaticameos\_65, Robyn\_68, Fringe\_72, Keitherie\_70, CampRoach\_69, Tooj\_66, ShiVal\_66, Anderson\_69, Nyala\_67, HSavage\_66, Apizium\_67, Nacho\_0071, Mecca\_68, Carthage\_68, Cannibal\_68, Gophee\_69, Kimbrough\_69, Samaymay\_68, Hetaeria\_67, Oosterbaan\_67, Lumine\_69, Burr\_68, Valjean\_67, Morty\_69
- Track 3 : FriarPreacher\_66, DirtJuice\_68, Murdoc\_65, Podrick\_67, Mulan\_67, Pherdinand\_68, Soto\_65, Prickles\_69, Vista\_66, Thora\_66, Derpp\_68, Zonia\_68, Cher\_68, Vortex\_67, Pipsqueak\_65, SDcharge11\_67, Vivaldi\_68, Banjo\_66, MichaelPhcott\_66, Iridoclysis\_67, MitKao\_67, Maru\_67, FluffyNinja\_68, Craff\_71, UncleHowie\_65, Phergie\_68, PhrodoBaggins\_69, Pinkman\_67, LeeLot\_67, PinheadLarry\_67, Doddsville\_66, TyrionL\_68, Trypo\_69, Yoshand\_68, Kailash\_66, Mana\_66, Squid\_67, Daffy\_66, Lego3393\_65, Fang\_69, PhrankReynolds\_67, LemonSlice\_68, Cobra\_68, Swish\_68, Morgushi\_66, PhenghisKhan\_68, KingTut\_59, Oline\_67, Slatt\_68, Harvey\_65, Daka\_70, SassyCat97\_66, Squiggle\_67, Phipps\_67, Held\_66, FugateOSU\_68, Phamished\_69, Placalicious\_68, HighStump\_69, TallGrassMM\_66, Labeouficaum\_68, Phleuron\_66, Kwksand96\_68, Haimas\_66, Puhltonio\_66, CharlieGBrown\_66, Mesh1\_68, DuchessDung\_67, KingVeVeVe\_66, BatteryCK\_66
- Track 4 : Zelda\_68, Veritas\_67, Plmatters\_66, Durga\_70, Sophia\_66, Etaye\_67, Surely\_68, LostAndPhound\_67, Emiris\_69, Legolas\_69, Wallhey\_68, Solosis\_66, Roliet\_65, Mag7\_66, YouGoGlencoco\_68, MRabcd\_67, TomBombadil\_68
- Track 5 : Buckeye\_68, Basato\_67, BlackStallion\_68, ImtiyazSitla\_68, Ashraf\_68, Gyarad\_0067, Grand2040\_66, Chorkpop\_68, GeneCoco\_68, MiniBoss\_65,

Hamish\_65, Horchata\_65, Scrick\_67, MelsMeow\_67, Phareon\_66, Inverness\_66, Lasso\_67, AltPhacts\_66, Potter\_65, DonSanchon\_64, Mikota\_65, Dingo\_65, Sheila\_64, Adriana\_69, Matalotodo\_67, Maskar\_68

- Track 6 : OSmaximus\_68
- Track 7 : JakeO\_69, Pops\_66
- Track 8 : DelRivs\_66, Crownjwl\_66, Soile\_69, Roscoe\_68, Rimu\_71
- Track 9 : Childish\_67, HenryJackson\_68, Kahve\_68, DaddyDaniels\_70
- Track 10 : Frankicide\_66
- Track 11 : Mosaic\_65
- Track 12 : Dati\_65, Melc17\_65, BlueHusk\_69
- Track 13 : Brilliant\_71
- Track 14 : Duggie\_68
- Track 15 : QueenBeane\_68, CamL\_68, Cosmolli16\_69
- Track 16 : Lulwa\_66, Usavi\_69, Zaider\_69
- Track 17 : Vaishali24\_68
- Track 18 : Kloppinator\_68
- Track 19 : Struggle\_68
- Track 20 : Indlovu\_65
- Track 21 : LilMcDreamy\_64
- Track 22 : Hashim76\_72
- Track 23 : Allegro\_64, Kaleb\_65, Faze9\_63, Coffee\_64, Phantasmagoria\_63, TA17A\_64
- Track 24 : Kheth\_64, Bananafish\_65, Glass\_65, LizLemon\_64, Lephleur\_64, MasterPo\_65, ItsyBitsy1\_63, West99\_64, Calamitous\_65, Godines\_65, Laurie\_64, Rosebush\_63, Opia\_65, Eaglehorse\_64, Qyrzula\_58, Boyle\_64, Arbiter\_62, Hedgerow\_64, Tres\_64, Ares\_64, Blocker23\_64, FrenchFry\_65, Holeinone\_64, Sabella\_64, Rhinoforte\_64
- Track 25 : Brownie5\_64, Tinciduntolum\_65
- Track 26 : Lars\_65
- Track 27 : SynergyX\_68, Jackstina\_64, Yinz\_68, ChaChing\_68, Phlyer\_68, GlenHope\_69, RagingRooster\_67, Audrey\_68, RomaT\_68, Rita1961\_69, Philly\_67, Nozo\_68, Corofin\_68, Devonte\_67, Heathcliff\_68, Gadget\_69, Deenasa\_68, Abinghost\_68, Casbah\_68, Athena\_70, OrangeOswald\_68
- Track 28 : MmasiCarm\_69, Ben11\_68, Phaedrus\_63, Akoma\_68, Daisy\_67, Kronus\_68, Yahalom\_66, Kamiyu\_68, Mortcellus\_68, Chandler\_68, Compostia\_67, Halfpint\_68, Baloo\_67, LestyG\_66
- Track 29 : Bernardo\_69
- Track 30 : SlippinJimmy\_71, Briakila\_68, Neos5\_68, Obutu\_70, Marley1013\_69, Phayeta\_71
- Track 31 : Tydolla\_65, HarveySr\_67
- Track 32 : Gervas\_69
- Track 33 : Pipefish\_71
- Track 34 : SirJeffery\_66
- Track 35 : Phelemich\_64, Reprobate\_65
- Track 36 : Acadian\_67
- Track 37 : Donny\_68, Suigeneris\_68
- Track 38 : EastView9101\_68
- Track 39 : Rich\_66
- Track 40 : Bae\_67
- Track 41 : Serendipitous\_65
- Track 42 : Jolie1\_061, KayaCho\_61, Hosp\_059
- Track 43 : 40BC\_061, 39HC\_061
- Track 44 : Saguaro\_64

- Track 45 : Thonko\_67
- Track 46 : CRB2\_64
- Track 47 : CRB2\_66
- Track 48 : LittleMunchkin\_63

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

The start number called the most often in the published annotations is 19, it was called in 106 of the 328 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- ABU\_67, Aelin\_67, Altwerkus\_66, Anderson\_69, Antonia\_67, Apizium\_67, Badfish\_68, Beaglebox\_66, Bishoperium\_68, Brilliant\_71, Burr\_68, CampRoach\_69, Cannibal\_68, Carthage\_68, Chaelin\_69, Chah\_69, Charles1\_69, CheetO\_67, Childish\_67, Chunky\_68, Colbert\_66, Crownjwl\_66, DaddyDaniels\_70, DelRivs\_66, Dione\_66, DoesntMatter\_65, EmpTee\_67, Eremos\_67, Freya\_65, Fringe\_72, Gareth\_68, Giraffe\_68, Gophee\_69, HSavage\_66, Haleema\_67, Hartsy\_67, HenryJackson\_68, Hertubise\_67, Hetaeria\_67, IsaacEli\_69, JDog\_67, JacAttac\_68, JangoPhett\_102, Jillium\_68, KLucky39\_66, Kahve\_68, Katniss\_69, Keitherie\_70, Kikipoo\_69, Kimbrough\_69, KlimbOn\_67, Kwadwo\_67, Longacauda\_69, LuckyMarjie\_65, Lulumae\_65, Lumine\_69, Manad\_67, Mcshane\_67, Mecca\_68, Megatron\_68, Morty\_69, Mutante\_68, Nacho\_0071, Newman\_66, Nicole21\_69, Numberten\_67, Nyala\_67, OliverWalter\_67, Omniscient\_69, Oosterbaan\_67, Orwigg\_68, PG1\_67, PhatCats2014\_68, PhatLouie\_70, Phunky\_66, Piglet\_0068, ProfessorX\_66, Quisquiliae\_69, Riggan\_69, Rimu\_71, Robyn\_68, Roscoe\_68, Roy17\_66, Samaymay\_68, Schadenfreude\_68, Scoot17C\_68, Serendipity\_67, Serpentine\_0068, ShiVal\_66, Sigman\_68, Simielle\_68, Skippy\_69, Soile\_69, Spartan300\_67, Suffolk\_66, Swiphy\_72, Telesworld\_66, ThreeOh3D2\_69, Timmi\_67, Tomlarah\_69, Toni\_68, Tooj\_66, True\_66, Valjean\_67, Vaticameos\_65, Virapocalypse\_69, Waterdiva\_68, Windsor\_68, Xavier\_67,

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

- CamL\_68, Cosmolli16\_69, Frankicide\_66, Lulwa\_66, QueenBeane\_68, Usavi\_69, Vaishali24\_68, Zaider\_69,

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

- 39HC\_061, 40BC\_061, Abinghost\_68, Acadian\_67, Adriana\_69, Akoma\_68, Allegro\_64, AltPhacts\_66, Arbiter\_62, Ares\_64, Ashraf\_68, Athena\_70, Audrey\_68, Bae\_67, Baloo\_67, Bananafish\_65, Banjo\_66, Basato\_67, BatteryCK\_66, Ben11\_68, Bernardo\_69, BlackStallion\_68, Blocker23\_64, BlueHusk\_69, Boyle\_64, Briakila\_68, Brownie5\_64, Buckeye\_68, CRB2\_64, CRB2\_66, Calamitous\_65, Casbah\_68, ChaChing\_68, Chandler\_68, CharlieGBrown\_66, Cher\_68, Chorkpop\_68, Cobra\_68, Coffee\_64, Compostia\_67, Corofin\_68, Craff\_71, Daffy\_66, Daisy\_67, Daka\_70, Dati\_65, Deenasa\_68, Derpp\_68, Devonte\_67, Dingo\_65, DirtJuice\_68, Doddsville\_66, DonSanchon\_64, Donny\_68, DuchessDung\_67, Duggie\_68, Durga\_70, Eaglehorse\_64, EastView9101\_68, Emiris\_69, Etaye\_67, Fang\_69, Faze9\_63, FluffyNinja\_68, FrenchFry\_65, FriarPreacher\_66, FugateOSU\_68, Gadjet\_69, GeneCoco\_68, Gervas\_69, Glass\_65, GlenHope\_69, Godines\_65, Grand2040\_66, Gyarad\_0067, Haimas\_66, Halfpint\_68, Hamish\_65, HarveySr\_67, Harvey\_65, Hashim76\_72, Heathcliff\_68, Hedgerow\_64, Held\_66,

HighStump\_69, Holeinone\_64, Horchata\_65, Hosp\_059, ImtiyazSitla\_68, Indlovu\_65, Inverness\_66, Iridoclysis\_67, ItsyBitsy1\_63, Jackstina\_64, JakeO\_69, Jolie1\_061, Kailash\_66, Kaleb\_65, Kamiyu\_68, KayaCho\_61, Kheth\_64, KingTut\_59, KingVeVeVe\_66, Kloppinator\_68, Kronus\_68, Kwksand96\_68, Labeouficaum\_68, Lars\_65, Lasso\_67, Laurie\_64, LeeLot\_67, Lego3393\_65, Legolas\_69, LemonSlice\_68, Lephleur\_64, LestyG\_66, LilMcDreamy\_64, LittleMunchkin\_63, LizLemon\_64, LostAndPhound\_67, MRabcd\_67, Mag7\_66, Mana\_66, Marley1013\_69, Maru\_67, Maskar\_68, MasterPo\_65, Matalotodo\_67, Melc17\_65, MelsMeow\_67, Mesh1\_68, MichaelPhcott\_66, Mikota\_65, MiniBoss\_65, MitKao\_67, MmasiCarm\_69, Morgushi\_66, Mortcellus\_68, Mosaic\_65, Mulan\_67, Murdoc\_65, Neos5\_68, Nozo\_68, OSmaximus\_68, Obutu\_70, Oline\_67, Opia\_65, OrangeOswald\_68, Phaedrus\_63, Phamished\_69, Phantasmagoria\_63, Phareon\_66, Phayeta\_71, Phelemich\_64, PhenghisKhan\_68, Pherdinand\_68, Phergie\_68, Philly\_67, Phipps\_67, Phleuron\_66, Phlyer\_68, PhrankReynolds\_67, PhrodoBaggins\_69, PinheadLarry\_67, Pinkman\_67, Pipefish\_71, Pipsqueak\_65, Placalicious\_68, Plmatters\_66, Podrick\_67, Pops\_66, Potter\_65, Prickles\_69, Puhltonio\_66, Qyrzula\_58, RagingRooster\_67, Reprobate\_65, Rhinoforte\_64, Rich\_66, Rita1961\_69, Roliet\_65, RomaT\_68, Rosebush\_63, SDcharge11\_67, Sabella\_64, Saguaro\_64, SassyCat97\_66, Scrick\_67, Serendipitous\_65, Sheila\_64, SirJeffery\_66, Slatt\_68, SlippinJimmy\_71, Solosis\_66, Sophia\_66, Soto\_65, Squid\_67, Squiggle\_67, Struggle\_68, Suigeneris\_68, Surely\_68, Swish\_68, SynergyX\_68, TA17A\_64, TallGrassMM\_66, Thonko\_67, Thora\_66, Tinciduntolum\_65, TomBombadil\_68, Tres\_64, Trypo\_69, Tydolla\_65, TyrionL\_68, UncleHowie\_65, Veritas\_67, Vista\_66, Vivaldi\_68, Vortex\_67, Wallhey\_68, Weher20\_65, West99\_64, Yahalom\_66, Yinz\_68, Yoshand\_68, YouGoGlencoco\_68, Zelda\_68, Zonia\_68,

### Summary by start number:

Start 16:

- Found in 116 of 344 ( 33.7% ) of genes in pham
- Manual Annotations of this start: 73 of 328
- Called 62.9% of time when present
- Phage (with cluster) where this start called: Banjo\_66 (B1), BatteryCK\_66 (B1), CharlieGBrown\_66 (B1), Cher\_68 (B1), Cobra\_68 (B1), Craff\_71 (B1), Daffy\_66 (B1), Daka\_70 (B1), Derpp\_68 (B1), DirtJuice\_68 (B1), Doddsville\_66 (B1), DuchessDung\_67 (B1), Fang\_69 (B1), FluffyNinja\_68 (B1), FriarPreacher\_66 (B1), FugateOSU\_68 (B1), Haimas\_66 (B1), Harvey\_65 (B1), Held\_66 (B1), HighStump\_69 (B1), Iridoclysis\_67 (B1), Kailash\_66 (B1), KingTut\_59 (B1), KingVeVeVe\_66 (B1), Kloppinator\_68 (B1), Kwksand96\_68 (B1), Labeouficaum\_68 (B1), LeeLot\_67 (B1), Lego3393\_65 (B1), LemonSlice\_68 (B1), Mana\_66 (B1), Maru\_67 (B1), Mesh1\_68 (B1), MichaelPhcott\_66 (B1), MitKao\_67 (B1), Morgushi\_66 (B1), Mosaic\_65 (B1), Mulan\_67 (B1), Murdoc\_65 (B1), OSmaximus\_68 (B1), Oline\_67 (B1), Phamished\_69 (B1), PhenghisKhan\_68 (B1), Pherdinand\_68 (B1), Phergie\_68 (B1), Phipps\_67 (B1), Phleuron\_66 (B1), PhrankReynolds\_67 (B1), PhrodoBaggins\_69 (B1), PinheadLarry\_67 (B1), Pinkman\_67 (B1), Pipsqueak\_65 (B1), Placalicious\_68 (B1), Podrick\_67 (B1), Prickles\_69 (B1), Puhltonio\_66 (B1), SDcharge11\_67 (B1), SassyCat97\_66 (B1), Slatt\_68 (B1), Soto\_65 (B1), Squid\_67 (B1), Squiggle\_67 (B1), Swish\_68 (B1), TallGrassMM\_66 (B1), Thora\_66 (B1), Trypo\_69 (B1), TyrionL\_68 (B1), UncleHowie\_65 (B1), Vista\_66 (B1), Vivaldi\_68 (B1), Vortex\_67 (B1), Yoshand\_68 (B1), Zonia\_68 (B1),

#### Start 19:

- Found in 117 of 344 ( 34.0% ) of genes in pham
- Manual Annotations of this start: 106 of 328
- Called 93.2% of time when present
- Phage (with cluster) where this start called: ABU\_67 (B1), Aelin\_67 (B1), Altwerkus\_66 (B1), Anderson\_69 (B1), Antonia\_67 (B1), Apizium\_67 (B1), Badfish\_68 (B1), Beaglebox\_66 (B1), Bishoperium\_68 (B1), Brilliant\_71 (B1), Burr\_68 (B1), CampRoach\_69 (B1), Cannibal\_68 (B1), Carthage\_68 (B1), Chaelin\_69 (B1), Chah\_69 (B1), Charles1\_69 (B1), CheetO\_67 (B1), Childish\_67 (B1), Chunky\_68 (B1), Colbert\_66 (B1), Crownjwl\_66 (B1), DaddyDaniels\_70 (B1), DelRivs\_66 (B1), Dione\_66 (B1), DoesntMatter\_65 (B1), EmpTee\_67 (B1), Eremos\_67 (B1), Freya\_65 (B1), Fringe\_72 (B1), Gareth\_68 (B1), Giraffe\_68 (B1), Gophee\_69 (B1), HSavage\_66 (B1), Haleema\_67 (B1), Hartsy\_67 (B1), HenryJackson\_68 (B1), Hertubise\_67 (B1), Hetaeria\_67 (B1), IsaacEli\_69 (B1), JDog\_67 (B1), JacAttac\_68 (B1), JangoPhett\_102 (B1), Jillium\_68 (B1), KLucky39\_66 (B1), Kahve\_68 (B1), Katniss\_69 (B1), Keitherie\_70 (B1), Kikipoo\_69 (B1), Kimbrough\_69 (B1), KlimbOn\_67 (B1), Kwadwo\_67 (B1), Longacauda\_69 (B1), LuckyMarjie\_65 (B1), Lulumae\_65 (B1), Lumine\_69 (B1), Manad\_67 (B1), Mcshane\_67 (B1), Mecca\_68 (B1), Megatron\_68 (B1), Morty\_69 (B1), Mutante\_68 (B1), Nacho\_0071 (B1), Newman\_66 (B1), Nicole21\_69 (B1), Numberten\_67 (B1), Nyala\_67 (B1), OliverWalter\_67 (B1), Omniscient\_69 (B1), Oosterbaan\_67 (B1), Orwigg\_68 (B1), PG1\_67 (B1), PhatCats2014\_68 (B1), PhatLouie\_70 (B1), Phunky\_66 (B1), Piglet\_0068 (B1), ProfessorX\_66 (B1), Quisquilliae\_69 (B1), Riggan\_69 (B1), Rimu\_71 (B1), Robyn\_68 (B1), Roscoe\_68 (B1), Roy17\_66 (B1), Samaymay\_68 (B1), Schadenfreude\_68 (B1), Scoot17C\_68 (B1), Serendipity\_67 (B1), Serpentine\_0068 (B1), ShiVal\_66 (B1), Sigman\_68 (B1), Simielle\_68 (B1), Skippy\_69 (B1), Soile\_69 (B1), Spartan300\_67 (B1), Suffolk\_66 (B1), Swiphy\_72 (B1), Telesworld\_66 (B1), ThreeOh3D2\_69 (B1), Timmi\_67 (B1), Tomlarah\_69 (B1), Toni\_68 (B1), Tooj\_66 (B1), True\_66 (B1), Valjean\_67 (B1), Vaticameos\_65 (B1), Virapocalypse\_69 (B1), Waterdiva\_68 (B1), Windsor\_68 (B1), Xavier\_67 (B1),

#### Start 22:

- Found in 9 of 344 ( 2.6% ) of genes in pham
- Manual Annotations of this start: 4 of 328
- Called 44.4% of time when present
- Phage (with cluster) where this start called: Acadian\_67 (B5), Bae\_67 (B5), Donny\_68 (B5), Suigeneris\_68 (B5),

#### Start 23:

- Found in 37 of 344 ( 10.8% ) of genes in pham
- Manual Annotations of this start: 21 of 328
- Called 56.8% of time when present
- Phage (with cluster) where this start called: Abinghost\_68 (B3), Athena\_70 (B3), Audrey\_68 (B3), Casbah\_68 (B3), ChaChing\_68 (B3), Corofin\_68 (B3), Deenasa\_68 (B3), Devonte\_67 (B3), Gadget\_69 (B3), GlenHope\_69 (B3), Heathcliff\_68 (B3), Jackstina\_64 (B3), Nozo\_68 (B3), OrangeOswald\_68 (B3), Philly\_67 (B3), Phlyer\_68 (B3), RagingRooster\_67 (B3), Rita1961\_69 (B3), RomaT\_68 (B3), SynergyX\_68 (B3), Yinz\_68 (B3),

#### Start 27:

- Found in 2 of 344 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 2 of 328
- Called 100.0% of time when present

- Phage (with cluster) where this start called: HarveySr\_67 (B3), Tydolla\_65 (B3),

#### Start 28:

- Found in 12 of 344 ( 3.5% ) of genes in pham
- Manual Annotations of this start: 3 of 328
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Phelemich\_64 (B5), Reprobate\_65 (B5), Saguaro\_64 (B7),

#### Start 29:

- Found in 159 of 344 ( 46.2% ) of genes in pham
- Manual Annotations of this start: 35 of 328
- Called 22.6% of time when present
- Phage (with cluster) where this start called: Arbiter\_62 (B2), Ares\_64 (B2), Bananafish\_65 (B2), Blocker23\_64 (B2), Boyle\_64 (B2), Brownie5\_64 (B2), Calamitous\_65 (B2), CamL\_68 (B1), Cosmolli16\_69 (B1), Duggie\_68 (B1), Eaglehorse\_64 (B2), FrenchFry\_65 (B2), Glass\_65 (B2), Godines\_65 (B2), Hashim76\_72 (B13), Hedgerow\_64 (B2), Holeinone\_64 (B2), ItsyBitsy1\_63 (B2), JakeO\_69 (B1), Kheth\_64 (B2), Laurie\_64 (B2), Lephleur\_64 (B2), LilMcDreamy\_64 (B12), LizLemon\_64 (B2), MasterPo\_65 (B2), Opia\_65 (B2), Pops\_66 (B1), QueenBeane\_68 (B1), Qyrzula\_58 (B2), Rhinoforte\_64 (B2), Rosebush\_63 (B2), Sabella\_64 (B2), Tinciduntolum\_65 (B2), Tres\_64 (B2), Vaishali24\_68 (B1), West99\_64 (B2),

#### Start 31:

- Found in 43 of 344 ( 12.5% ) of genes in pham
- Manual Annotations of this start: 1 of 328
- Called 2.3% of time when present
- Phage (with cluster) where this start called: Gervas\_69 (B3),

#### Start 32:

- Found in 1 of 344 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 328
- Called 100.0% of time when present
- Phage (with cluster) where this start called: LittleMunchkin\_63 (DR),

#### Start 33:

- Found in 293 of 344 ( 85.2% ) of genes in pham
- Manual Annotations of this start: 27 of 328
- Called 9.9% of time when present
- Phage (with cluster) where this start called: CRB2\_64 (B9), Durga\_70 (B1), EastView9101\_68 (B5), Emiris\_69 (B1), Etaye\_67 (B1), Frankicide\_66 (B1), Lars\_65 (B2), Legolas\_69 (B1), LostAndPhound\_67 (B1), Lulwa\_66 (B1), MRabcd\_67 (B1), Mag7\_66 (B1), Plmatters\_66 (B1), Rich\_66 (B5), Roliet\_65 (B1), Serendipitous\_65 (B5), SirJeffery\_66 (B5), Solosis\_66 (B1), Sophia\_66 (B1), Struggle\_68 (B1), Surely\_68 (B1), TomBombadil\_68 (B1), Usavi\_69 (B1), Veritas\_67 (B1), Wallhey\_68 (B1), Weher20\_65 (B1), YouGoGlencoco\_68 (B1), Zaider\_69 (B1), Zelda\_68 (B1),

#### Start 34:

- Found in 46 of 344 ( 13.4% ) of genes in pham
- Manual Annotations of this start: 14 of 328
- Called 34.8% of time when present

- Phage (with cluster) where this start called: Akoma\_68 (B3), Baloo\_67 (B3), Ben11\_68 (B3), Bernardo\_69 (B3), Chandler\_68 (B3), Compostia\_67 (B3), Daisy\_67 (B3), Halfpint\_68 (B3), Kamiyu\_68 (B3), Kronus\_68 (B3), LestyG\_66 (B3), MmasiCarm\_69 (B3), Mortcellus\_68 (B3), Phaedrus\_63 (B3), Pipefish\_71 (B3), Yahalom\_66 (B3),

Start 35:

- Found in 1 of 344 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 328
- Called 100.0% of time when present
- Phage (with cluster) where this start called: CRB2\_66 (B9),

Start 36:

- Found in 44 of 344 ( 12.8% ) of genes in pham
- Manual Annotations of this start: 5 of 328
- Called 13.6% of time when present
- Phage (with cluster) where this start called: Briakila\_68 (B3), Marley1013\_69 (B3), Neos5\_68 (B3), Obutu\_70 (B3), Phayeta\_71 (B3), SlippinJimmy\_71 (B3),

Start 37:

- Found in 1 of 344 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 328
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Thonko\_67 (B8),

Start 38:

- Found in 1 of 344 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 328
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Indlovu\_65 (B11),

Start 42:

- Found in 34 of 344 ( 9.9% ) of genes in pham
- Manual Annotations of this start: 4 of 328
- Called 17.6% of time when present
- Phage (with cluster) where this start called: Allegro\_64 (B2), Coffee\_64 (B2), Faze9\_63 (B2), Kaleb\_65 (B2), Phantasmagoria\_63 (B2), TA17A\_64 (B2),

Start 46:

- Found in 129 of 344 ( 37.5% ) of genes in pham
- Manual Annotations of this start: 29 of 328
- Called 26.4% of time when present
- Phage (with cluster) where this start called: 39HC\_061 (B6), 40BC\_061 (B6), Adriana\_69 (B1), AltPhacts\_66 (B1), Ashraf\_68 (B1), Basato\_67 (B1), BlackStallion\_68 (B1), BlueHusk\_69 (B1), Buckeye\_68 (B1), Chorkpop\_68 (B1), Dati\_65 (B1), Dingo\_65 (B1), DonSancho\_64 (B1), GeneCoco\_68 (B1), Grand2040\_66 (B1), Gyarad\_0067 (B1), Hamish\_65 (B1), Horchata\_65 (B1), Hosp\_059 (B6), ImtiyazSitla\_68 (B1), Inverness\_66 (B1), Jolie1\_061 (B6), KayaCho\_61 (B6), Lasso\_67 (B1), Maskar\_68 (B1), Matalotodo\_67 (B1), Melc17\_65 (B1), MelsMeow\_67 (B1), Mikota\_65 (B1), MiniBoss\_65 (B1), Phareon\_66 (B1), Potter\_65 (B1), Scrick\_67 (B1), Sheila\_64 (B1),

**Summary by clusters:**



There are 12 clusters represented in this pham: B8, B11, B5, B6, B7, B12, B1, B2, B3, DR, B9, B13,

Info for manual annotations of cluster B1:

- Start number 16 was manually annotated 73 times for cluster B1.
- Start number 19 was manually annotated 106 times for cluster B1.
- Start number 29 was manually annotated 7 times for cluster B1.
- Start number 33 was manually annotated 23 times for cluster B1.
- Start number 46 was manually annotated 28 times for cluster B1.

Info for manual annotations of cluster B11:

- Start number 38 was manually annotated 1 time for cluster B11.

Info for manual annotations of cluster B12:

- Start number 29 was manually annotated 1 time for cluster B12.

Info for manual annotations of cluster B2:

- Start number 29 was manually annotated 27 times for cluster B2.
- Start number 33 was manually annotated 1 time for cluster B2.
- Start number 42 was manually annotated 4 times for cluster B2.

Info for manual annotations of cluster B3:

- Start number 23 was manually annotated 21 times for cluster B3.
- Start number 27 was manually annotated 2 times for cluster B3.
- Start number 31 was manually annotated 1 time for cluster B3.
- Start number 34 was manually annotated 14 times for cluster B3.
- Start number 36 was manually annotated 5 times for cluster B3.

Info for manual annotations of cluster B5:

- Start number 22 was manually annotated 4 times for cluster B5.
- Start number 28 was manually annotated 2 times for cluster B5.
- Start number 33 was manually annotated 2 times for cluster B5.

Info for manual annotations of cluster B6:

- Start number 46 was manually annotated 1 time for cluster B6.

Info for manual annotations of cluster B7:

- Start number 28 was manually annotated 1 time for cluster B7.

Info for manual annotations of cluster B8:

- Start number 37 was manually annotated 1 time for cluster B8.

Info for manual annotations of cluster B9:

- Start number 33 was manually annotated 1 time for cluster B9.
- Start number 35 was manually annotated 1 time for cluster B9.

Info for manual annotations of cluster DR:

- Start number 32 was manually annotated 1 time for cluster DR.

### **Gene Information:**

Gene: 39HC\_061 Start: 56330, Stop: 56530, Start Num: 46

Candidate Starts for 39HC\_061:

(Start: 33 @56279 has 27 MA's), (Start: 46 @56330 has 29 MA's), (47, 56333), (48, 56336), (50, 56348),

Gene: 40BC\_061 Start: 56330, Stop: 56530, Start Num: 46

Candidate Starts for 40BC\_061:

(Start: 33 @56279 has 27 MA's), (Start: 46 @56330 has 29 MA's), (47, 56333), (48, 56336), (50, 56348),

Gene: ABU\_67 Start: 57301, Stop: 57573, Start Num: 19

Candidate Starts for ABU\_67:

(Start: 19 @57301 has 106 MA's), (Start: 29 @57322 has 35 MA's), (Start: 33 @57331 has 27 MA's), (47, 57394), (51, 57421), (64, 57544),

Gene: Abinghost\_68 Start: 57207, Stop: 57494, Start Num: 23

Candidate Starts for Abinghost\_68:

(2, 56985), (3, 57003), (4, 57015), (6, 57060), (17, 57195), (Start: 23 @57207 has 21 MA's), (26, 57225), (Start: 31 @57237 has 1 MA's), (Start: 34 @57246 has 14 MA's), (Start: 36 @57255 has 5 MA's), (56, 57399), (63, 57456),

Gene: Acadian\_67 Start: 58258, Stop: 58542, Start Num: 22

Candidate Starts for Acadian\_67:

(Start: 22 @58258 has 4 MA's), (Start: 28 @58285 has 3 MA's), (Start: 33 @58294 has 27 MA's), (48, 58360), (56, 58438), (62, 58492), (66, 58528),

Gene: Adriana\_69 Start: 57994, Stop: 58173, Start Num: 46

Candidate Starts for Adriana\_69:

(Start: 16 @57871 has 73 MA's), (Start: 33 @57925 has 27 MA's), (Start: 46 @57994 has 29 MA's), (52, 58036),

Gene: Aelin\_67 Start: 56821, Stop: 57093, Start Num: 19

Candidate Starts for Aelin\_67:

(Start: 19 @56821 has 106 MA's), (Start: 29 @56842 has 35 MA's), (Start: 33 @56851 has 27 MA's), (47, 56914), (51, 56941), (64, 57064),

Gene: Akoma\_68 Start: 57286, Stop: 57534, Start Num: 34

Candidate Starts for Akoma\_68:

(2, 57025), (3, 57043), (4, 57055), (6, 57100), (17, 57235), (Start: 23 @57247 has 21 MA's), (26, 57265), (Start: 31 @57277 has 1 MA's), (Start: 34 @57286 has 14 MA's), (Start: 36 @57295 has 5 MA's), (56, 57439), (63, 57496),

Gene: Allegro\_64 Start: 55516, Stop: 55722, Start Num: 42

Candidate Starts for Allegro\_64:

(Start: 29 @55462 has 35 MA's), (Start: 33 @55471 has 27 MA's), (Start: 42 @55516 has 4 MA's), (47, 55543), (51, 55570), (54, 55597), (58, 55639), (61, 55672), (63, 55681), (64, 55693),

Gene: AltPhacts\_66 Start: 56481, Stop: 56660, Start Num: 46

Candidate Starts for AltPhacts\_66:

(Start: 16 @56358 has 73 MA's), (Start: 33 @56412 has 27 MA's), (Start: 46 @56481 has 29 MA's), (52, 56523),

Gene: Altwerkus\_66 Start: 56464, Stop: 56736, Start Num: 19

Candidate Starts for Altwerkus\_66:

(Start: 19 @56464 has 106 MA's), (Start: 29 @56485 has 35 MA's), (Start: 33 @56494 has 27 MA's), (47, 56557), (51, 56584), (64, 56707),

Gene: Anderson\_69 Start: 57036, Stop: 57308, Start Num: 19

Candidate Starts for Anderson\_69:

(Start: 19 @57036 has 106 MA's), (Start: 29 @57057 has 35 MA's), (Start: 33 @57066 has 27 MA's), (47, 57129), (51, 57156), (64, 57279),

Gene: Antonia\_67 Start: 56820, Stop: 57092, Start Num: 19

Candidate Starts for Antonia\_67:

(Start: 19 @56820 has 106 MA's), (Start: 29 @56841 has 35 MA's), (Start: 33 @56850 has 27 MA's), (47, 56913), (51, 56940), (64, 57063),

Gene: Apizium\_67 Start: 56482, Stop: 56754, Start Num: 19

Candidate Starts for Apizium\_67:

(Start: 19 @56482 has 106 MA's), (Start: 29 @56503 has 35 MA's), (Start: 33 @56512 has 27 MA's), (47, 56575), (51, 56602), (64, 56725),

Gene: Arbiter\_62 Start: 55569, Stop: 55829, Start Num: 29

Candidate Starts for Arbiter\_62:

(Start: 29 @55569 has 35 MA's), (Start: 33 @55578 has 27 MA's), (Start: 42 @55623 has 4 MA's), (47, 55650), (51, 55677), (54, 55704), (58, 55746), (61, 55779), (63, 55788), (64, 55800),

Gene: Ares\_64 Start: 55540, Stop: 55800, Start Num: 29

Candidate Starts for Ares\_64:

(Start: 29 @55540 has 35 MA's), (Start: 33 @55549 has 27 MA's), (Start: 42 @55594 has 4 MA's), (47, 55621), (51, 55648), (54, 55675), (58, 55717), (61, 55750), (63, 55759), (64, 55771),

Gene: Ashraf\_68 Start: 57146, Stop: 57325, Start Num: 46

Candidate Starts for Ashraf\_68:

(Start: 16 @57023 has 73 MA's), (Start: 33 @57077 has 27 MA's), (Start: 46 @57146 has 29 MA's), (52, 57188),

Gene: Athena\_70 Start: 57982, Stop: 58269, Start Num: 23

Candidate Starts for Athena\_70:

(2, 57760), (3, 57778), (4, 57790), (6, 57835), (17, 57970), (Start: 23 @57982 has 21 MA's), (26, 58000), (Start: 31 @58012 has 1 MA's), (Start: 34 @58021 has 14 MA's), (Start: 36 @58030 has 5 MA's), (56, 58174), (63, 58231),

Gene: Audrey\_68 Start: 57246, Stop: 57533, Start Num: 23

Candidate Starts for Audrey\_68:

(2, 57024), (3, 57042), (4, 57054), (6, 57099), (17, 57234), (Start: 23 @57246 has 21 MA's), (26, 57264), (Start: 31 @57276 has 1 MA's), (Start: 34 @57285 has 14 MA's), (Start: 36 @57294 has 5 MA's), (56, 57438), (63, 57495),

Gene: Badfish\_68 Start: 57322, Stop: 57594, Start Num: 19

Candidate Starts for Badfish\_68:

(Start: 19 @57322 has 106 MA's), (Start: 29 @57343 has 35 MA's), (Start: 33 @57352 has 27 MA's), (47, 57415), (51, 57442), (64, 57565),

Gene: Bae\_67 Start: 59301, Stop: 59585, Start Num: 22

Candidate Starts for Bae\_67:

(Start: 22 @59301 has 4 MA's), (Start: 28 @59328 has 3 MA's), (Start: 33 @59337 has 27 MA's), (48, 59403), (55, 59466), (56, 59481), (62, 59535), (66, 59571), (68, 59580),

Gene: Baloo\_67 Start: 57118, Stop: 57366, Start Num: 34

Candidate Starts for Baloo\_67:

(2, 56857), (3, 56875), (4, 56887), (6, 56932), (17, 57067), (Start: 23 @57079 has 21 MA's), (26, 57097), (Start: 31 @57109 has 1 MA's), (Start: 34 @57118 has 14 MA's), (Start: 36 @57127 has 5 MA's), (56, 57271), (63, 57328),

Gene: Bananafish\_65 Start: 55470, Stop: 55730, Start Num: 29

Candidate Starts for Bananafish\_65:

(Start: 29 @55470 has 35 MA's), (Start: 33 @55479 has 27 MA's), (Start: 42 @55524 has 4 MA's), (47, 55551), (51, 55578), (54, 55605), (58, 55647), (61, 55680), (63, 55689), (64, 55701),

Gene: Banjo\_66 Start: 56800, Stop: 57102, Start Num: 16

Candidate Starts for Banjo\_66:

(Start: 16 @56800 has 73 MA's), (Start: 33 @56854 has 27 MA's), (Start: 46 @56923 has 29 MA's), (52, 56965),

Gene: Basato\_67 Start: 57199, Stop: 57378, Start Num: 46

Candidate Starts for Basato\_67:

(Start: 16 @57076 has 73 MA's), (Start: 33 @57130 has 27 MA's), (Start: 46 @57199 has 29 MA's), (52, 57241),

Gene: BatteryCK\_66 Start: 56770, Stop: 57072, Start Num: 16

Candidate Starts for BatteryCK\_66:

(Start: 16 @56770 has 73 MA's), (Start: 33 @56824 has 27 MA's), (Start: 46 @56893 has 29 MA's), (52, 56935),

Gene: Beaglebox\_66 Start: 56876, Stop: 57148, Start Num: 19

Candidate Starts for Beaglebox\_66:

(Start: 19 @56876 has 106 MA's), (Start: 29 @56897 has 35 MA's), (Start: 33 @56906 has 27 MA's), (47, 56969), (51, 56996), (64, 57119),

Gene: Ben11\_68 Start: 57503, Stop: 57751, Start Num: 34

Candidate Starts for Ben11\_68:

(2, 57242), (3, 57260), (4, 57272), (6, 57317), (17, 57452), (Start: 23 @57464 has 21 MA's), (26, 57482), (Start: 31 @57494 has 1 MA's), (Start: 34 @57503 has 14 MA's), (Start: 36 @57512 has 5 MA's), (56, 57656), (63, 57713),

Gene: Bernardo\_69 Start: 57484, Stop: 57732, Start Num: 34

Candidate Starts for Bernardo\_69:

(17, 57433), (Start: 23 @57445 has 21 MA's), (26, 57463), (Start: 31 @57475 has 1 MA's), (Start: 34 @57484 has 14 MA's), (Start: 36 @57493 has 5 MA's), (56, 57637), (63, 57694),

Gene: Bishoperium\_68 Start: 57350, Stop: 57622, Start Num: 19

Candidate Starts for Bishoperium\_68:

(Start: 19 @57350 has 106 MA's), (Start: 29 @57371 has 35 MA's), (Start: 33 @57380 has 27 MA's), (47, 57443), (51, 57470), (64, 57593),

Gene: BlackStallion\_68 Start: 57193, Stop: 57372, Start Num: 46

Candidate Starts for BlackStallion\_68:

(Start: 16 @57070 has 73 MA's), (Start: 33 @57124 has 27 MA's), (Start: 46 @57193 has 29 MA's), (52, 57235),

Gene: Blocker23\_64 Start: 55537, Stop: 55797, Start Num: 29

Candidate Starts for Blocker23\_64:

(Start: 29 @55537 has 35 MA's), (Start: 33 @55546 has 27 MA's), (Start: 42 @55591 has 4 MA's), (47, 55618), (51, 55645), (54, 55672), (58, 55714), (61, 55747), (63, 55756), (64, 55768),

Gene: BlueHusk\_69 Start: 56949, Stop: 57128, Start Num: 46

Candidate Starts for BlueHusk\_69:

(14, 56817), (Start: 33 @56880 has 27 MA's), (Start: 46 @56949 has 29 MA's), (52, 56991),

Gene: Boyle\_64 Start: 55578, Stop: 55838, Start Num: 29

Candidate Starts for Boyle\_64:

(Start: 29 @55578 has 35 MA's), (Start: 33 @55587 has 27 MA's), (Start: 42 @55632 has 4 MA's), (47, 55659), (51, 55686), (54, 55713), (58, 55755), (61, 55788), (63, 55797), (64, 55809),

Gene: Briakila\_68 Start: 57517, Stop: 57732, Start Num: 36

Candidate Starts for Briakila\_68:

(9, 57373), (Start: 31 @57499 has 1 MA's), (Start: 34 @57508 has 14 MA's), (Start: 36 @57517 has 5 MA's), (47, 57568), (63, 57694),

Gene: Brilliant\_71 Start: 57319, Stop: 57591, Start Num: 19

Candidate Starts for Brilliant\_71:

(Start: 19 @57319 has 106 MA's), (Start: 29 @57340 has 35 MA's), (Start: 33 @57349 has 27 MA's), (47, 57412), (51, 57439), (55, 57478), (64, 57562),

Gene: Brownie5\_64 Start: 55580, Stop: 55840, Start Num: 29

Candidate Starts for Brownie5\_64:

(Start: 29 @55580 has 35 MA's), (Start: 33 @55589 has 27 MA's), (Start: 42 @55634 has 4 MA's), (51, 55688), (54, 55715), (58, 55757), (61, 55790), (63, 55799), (64, 55811),

Gene: Buckeye\_68 Start: 58013, Stop: 58192, Start Num: 46

Candidate Starts for Buckeye\_68:

(Start: 16 @57890 has 73 MA's), (Start: 33 @57944 has 27 MA's), (Start: 46 @58013 has 29 MA's), (52, 58055),

Gene: Burr\_68 Start: 56786, Stop: 57058, Start Num: 19

Candidate Starts for Burr\_68:

(Start: 19 @56786 has 106 MA's), (Start: 29 @56807 has 35 MA's), (Start: 33 @56816 has 27 MA's), (47, 56879), (51, 56906), (64, 57029),

Gene: CRB2\_64 Start: 58911, Stop: 59153, Start Num: 33

Candidate Starts for CRB2\_64:

(Start: 29 @58902 has 35 MA's), (Start: 33 @58911 has 27 MA's), (48, 58971), (50, 58983), (53, 59013), (55, 59034),

Gene: CRB2\_66 Start: 60189, Stop: 60422, Start Num: 35

Candidate Starts for CRB2\_66:

(Start: 35 @60189 has 1 MA's), (39, 60222), (41, 60225), (Start: 46 @60252 has 29 MA's), (50, 60270),

Gene: Calamitous\_65 Start: 55468, Stop: 55728, Start Num: 29

Candidate Starts for Calamitous\_65:

(Start: 29 @55468 has 35 MA's), (Start: 33 @55477 has 27 MA's), (Start: 42 @55522 has 4 MA's), (47, 55549), (51, 55576), (54, 55603), (58, 55645), (61, 55678), (63, 55687), (64, 55699),

Gene: CamL\_68 Start: 57139, Stop: 57390, Start Num: 29

Candidate Starts for CamL\_68:

(Start: 19 @57118 has 106 MA's), (Start: 29 @57139 has 35 MA's), (Start: 33 @57148 has 27 MA's), (47, 57211), (51, 57238), (64, 57361),

Gene: CampRoach\_69 Start: 57225, Stop: 57497, Start Num: 19

Candidate Starts for CampRoach\_69:

(Start: 19 @57225 has 106 MA's), (Start: 29 @57246 has 35 MA's), (Start: 33 @57255 has 27 MA's), (47, 57318), (51, 57345), (64, 57468),

Gene: Cannibal\_68 Start: 57060, Stop: 57332, Start Num: 19

Candidate Starts for Cannibal\_68:

(Start: 19 @57060 has 106 MA's), (Start: 29 @57081 has 35 MA's), (Start: 33 @57090 has 27 MA's), (47, 57153), (51, 57180), (64, 57303),

Gene: Carthage\_68 Start: 56724, Stop: 56996, Start Num: 19

Candidate Starts for Carthage\_68:

(Start: 19 @56724 has 106 MA's), (Start: 29 @56745 has 35 MA's), (Start: 33 @56754 has 27 MA's), (47, 56817), (51, 56844), (64, 56967),

Gene: Casbah\_68 Start: 57566, Stop: 57853, Start Num: 23

Candidate Starts for Casbah\_68:

(2, 57344), (3, 57362), (4, 57374), (6, 57419), (17, 57554), (Start: 23 @57566 has 21 MA's), (26, 57584), (Start: 31 @57596 has 1 MA's), (Start: 34 @57605 has 14 MA's), (Start: 36 @57614 has 5 MA's), (56, 57758), (63, 57815),

Gene: ChaChing\_68 Start: 57264, Stop: 57551, Start Num: 23

Candidate Starts for ChaChing\_68:

(2, 57042), (3, 57060), (4, 57072), (6, 57117), (17, 57252), (Start: 23 @57264 has 21 MA's), (26, 57282), (Start: 31 @57294 has 1 MA's), (Start: 34 @57303 has 14 MA's), (Start: 36 @57312 has 5 MA's), (56, 57456), (63, 57513),

Gene: Chaelin\_69 Start: 57349, Stop: 57621, Start Num: 19

Candidate Starts for Chaelin\_69:

(Start: 19 @57349 has 106 MA's), (Start: 29 @57370 has 35 MA's), (Start: 33 @57379 has 27 MA's), (47, 57442), (51, 57469), (64, 57592),

Gene: Chah\_69 Start: 56763, Stop: 57035, Start Num: 19

Candidate Starts for Chah\_69:

(Start: 19 @56763 has 106 MA's), (Start: 29 @56784 has 35 MA's), (Start: 33 @56793 has 27 MA's), (47, 56856), (51, 56883), (64, 57006),

Gene: Chandler\_68 Start: 58065, Stop: 58313, Start Num: 34

Candidate Starts for Chandler\_68:

(2, 57804), (3, 57822), (4, 57834), (6, 57879), (17, 58014), (Start: 23 @58026 has 21 MA's), (26, 58044), (Start: 31 @58056 has 1 MA's), (Start: 34 @58065 has 14 MA's), (Start: 36 @58074 has 5 MA's), (56, 58218), (63, 58275),

Gene: Charles1\_69 Start: 57073, Stop: 57345, Start Num: 19

Candidate Starts for Charles1\_69:

(Start: 19 @57073 has 106 MA's), (Start: 29 @57094 has 35 MA's), (Start: 33 @57103 has 27 MA's), (47, 57166), (51, 57193), (64, 57316),

Gene: CharlieGBrown\_66 Start: 56715, Stop: 57017, Start Num: 16

Candidate Starts for CharlieGBrown\_66:

(Start: 16 @56715 has 73 MA's), (Start: 33 @56769 has 27 MA's), (Start: 46 @56838 has 29 MA's), (52, 56880),

Gene: CheetO\_67 Start: 57036, Stop: 57308, Start Num: 19

Candidate Starts for CheetO\_67:

(Start: 19 @57036 has 106 MA's), (Start: 29 @57057 has 35 MA's), (Start: 33 @57066 has 27 MA's), (47, 57129), (51, 57156), (64, 57279),

Gene: Cher\_68 Start: 57320, Stop: 57622, Start Num: 16

Candidate Starts for Cher\_68:

(Start: 16 @57320 has 73 MA's), (Start: 33 @57374 has 27 MA's), (Start: 46 @57443 has 29 MA's), (52, 57485),

Gene: Childish\_67 Start: 57339, Stop: 57611, Start Num: 19

Candidate Starts for Childish\_67:

(Start: 19 @57339 has 106 MA's), (Start: 29 @57360 has 35 MA's), (Start: 33 @57369 has 27 MA's), (47, 57432), (48, 57435), (51, 57459), (64, 57582),

Gene: Chorkpop\_68 Start: 56930, Stop: 57109, Start Num: 46

Candidate Starts for Chorkpop\_68:

(Start: 16 @56807 has 73 MA's), (Start: 33 @56861 has 27 MA's), (Start: 46 @56930 has 29 MA's), (52, 56972),

Gene: Chunky\_68 Start: 56653, Stop: 56925, Start Num: 19

Candidate Starts for Chunky\_68:

(Start: 19 @56653 has 106 MA's), (Start: 29 @56674 has 35 MA's), (Start: 33 @56683 has 27 MA's), (47, 56746), (51, 56773), (64, 56896),

Gene: Cobra\_68 Start: 57351, Stop: 57653, Start Num: 16

Candidate Starts for Cobra\_68:

(Start: 16 @57351 has 73 MA's), (Start: 33 @57405 has 27 MA's), (Start: 46 @57474 has 29 MA's), (52, 57516),

Gene: Coffee\_64 Start: 55626, Stop: 55832, Start Num: 42

Candidate Starts for Coffee\_64:

(Start: 29 @55572 has 35 MA's), (Start: 33 @55581 has 27 MA's), (Start: 42 @55626 has 4 MA's), (47, 55653), (51, 55680), (54, 55707), (58, 55749), (61, 55782), (63, 55791), (64, 55803),

Gene: Colbert\_66 Start: 56375, Stop: 56647, Start Num: 19

Candidate Starts for Colbert\_66:

(Start: 19 @56375 has 106 MA's), (Start: 29 @56396 has 35 MA's), (Start: 33 @56405 has 27 MA's), (47, 56468), (51, 56495), (64, 56618),

Gene: Compostia\_67 Start: 57686, Stop: 57934, Start Num: 34

Candidate Starts for Compostia\_67:

(2, 57425), (3, 57443), (4, 57455), (6, 57500), (17, 57635), (Start: 23 @57647 has 21 MA's), (26, 57665), (Start: 31 @57677 has 1 MA's), (Start: 34 @57686 has 14 MA's), (Start: 36 @57695 has 5 MA's), (56, 57839), (63, 57896),

Gene: Corofin\_68 Start: 57277, Stop: 57564, Start Num: 23

Candidate Starts for Corofin\_68:

(2, 57055), (3, 57073), (4, 57085), (6, 57130), (17, 57265), (Start: 23 @57277 has 21 MA's), (26, 57295), (Start: 31 @57307 has 1 MA's), (Start: 34 @57316 has 14 MA's), (Start: 36 @57325 has 5 MA's), (56, 57469), (63, 57526),

Gene: Cosmolli16\_69 Start: 57541, Stop: 57792, Start Num: 29

Candidate Starts for Cosmolli16\_69:

(Start: 19 @57520 has 106 MA's), (Start: 29 @57541 has 35 MA's), (Start: 33 @57550 has 27 MA's), (47, 57613), (51, 57640), (64, 57763),

Gene: Craff\_71 Start: 57754, Stop: 58056, Start Num: 16

Candidate Starts for Craff\_71:

(Start: 16 @57754 has 73 MA's), (Start: 33 @57808 has 27 MA's), (Start: 46 @57877 has 29 MA's), (52, 57919),

Gene: Crownjwl\_66 Start: 56838, Stop: 57110, Start Num: 19

Candidate Starts for Crownjwl\_66:

(Start: 19 @56838 has 106 MA's), (Start: 29 @56859 has 35 MA's), (Start: 33 @56868 has 27 MA's), (51, 56958), (64, 57081),

Gene: DaddyDaniels\_70 Start: 57296, Stop: 57568, Start Num: 19

Candidate Starts for DaddyDaniels\_70:

(Start: 19 @57296 has 106 MA's), (Start: 29 @57317 has 35 MA's), (Start: 33 @57326 has 27 MA's), (47, 57389), (48, 57392), (51, 57416), (64, 57539),

Gene: Daffy\_66 Start: 56792, Stop: 57094, Start Num: 16

Candidate Starts for Daffy\_66:

(Start: 16 @56792 has 73 MA's), (Start: 33 @56846 has 27 MA's), (Start: 46 @56915 has 29 MA's), (52, 56957),

Gene: Daisy\_67 Start: 56849, Stop: 57097, Start Num: 34

Candidate Starts for Daisy\_67:

(2, 56588), (3, 56606), (4, 56618), (6, 56663), (17, 56798), (Start: 23 @56810 has 21 MA's), (26, 56828), (Start: 31 @56840 has 1 MA's), (Start: 34 @56849 has 14 MA's), (Start: 36 @56858 has 5 MA's), (56, 57002), (63, 57059),

Gene: Daka\_70 Start: 57306, Stop: 57608, Start Num: 16

Candidate Starts for Daka\_70:

(Start: 16 @57306 has 73 MA's), (Start: 33 @57360 has 27 MA's), (Start: 46 @57429 has 29 MA's), (52, 57471),

Gene: Dati\_65 Start: 57259, Stop: 57438, Start Num: 46

Candidate Starts for Dati\_65:

(14, 57127), (Start: 33 @57190 has 27 MA's), (Start: 46 @57259 has 29 MA's), (52, 57301),

Gene: Deenasa\_68 Start: 58113, Stop: 58400, Start Num: 23

Candidate Starts for Deenasa\_68:



(2, 57891), (3, 57909), (4, 57921), (6, 57966), (17, 58101), (Start: 23 @58113 has 21 MA's), (26, 58131), (Start: 31 @58143 has 1 MA's), (Start: 34 @58152 has 14 MA's), (Start: 36 @58161 has 5 MA's), (56, 58305), (63, 58362),

Gene: DelRivs\_66 Start: 56786, Stop: 57058, Start Num: 19

Candidate Starts for DelRivs\_66:

(Start: 19 @56786 has 106 MA's), (Start: 29 @56807 has 35 MA's), (Start: 33 @56816 has 27 MA's), (51, 56906), (64, 57029),

Gene: Derpp\_68 Start: 56891, Stop: 57193, Start Num: 16

Candidate Starts for Derpp\_68:

(Start: 16 @56891 has 73 MA's), (Start: 33 @56945 has 27 MA's), (Start: 46 @57014 has 29 MA's), (52, 57056),

Gene: Devonte\_67 Start: 56889, Stop: 57176, Start Num: 23

Candidate Starts for Devonte\_67:

(2, 56667), (3, 56685), (4, 56697), (6, 56742), (17, 56877), (Start: 23 @56889 has 21 MA's), (26, 56907), (Start: 31 @56919 has 1 MA's), (Start: 34 @56928 has 14 MA's), (Start: 36 @56937 has 5 MA's), (56, 57081), (63, 57138),

Gene: Dingo\_65 Start: 56457, Stop: 56636, Start Num: 46

Candidate Starts for Dingo\_65:

(Start: 16 @56334 has 73 MA's), (Start: 33 @56388 has 27 MA's), (Start: 46 @56457 has 29 MA's), (52, 56499),

Gene: Dione\_66 Start: 56518, Stop: 56790, Start Num: 19

Candidate Starts for Dione\_66:

(Start: 19 @56518 has 106 MA's), (Start: 29 @56539 has 35 MA's), (Start: 33 @56548 has 27 MA's), (47, 56611), (51, 56638), (64, 56761),

Gene: DirtJuice\_68 Start: 57097, Stop: 57399, Start Num: 16

Candidate Starts for DirtJuice\_68:

(Start: 16 @57097 has 73 MA's), (Start: 33 @57151 has 27 MA's), (Start: 46 @57220 has 29 MA's), (52, 57262),

Gene: Doddsville\_66 Start: 56854, Stop: 57156, Start Num: 16

Candidate Starts for Doddsville\_66:

(Start: 16 @56854 has 73 MA's), (Start: 33 @56908 has 27 MA's), (Start: 46 @56977 has 29 MA's), (52, 57019),

Gene: DoesntMatter\_65 Start: 56808, Stop: 57080, Start Num: 19

Candidate Starts for DoesntMatter\_65:

(Start: 19 @56808 has 106 MA's), (Start: 29 @56829 has 35 MA's), (Start: 33 @56838 has 27 MA's), (47, 56901), (51, 56928), (64, 57051),

Gene: DonSanchon\_64 Start: 56612, Stop: 56791, Start Num: 46

Candidate Starts for DonSanchon\_64:

(Start: 16 @56489 has 73 MA's), (Start: 33 @56543 has 27 MA's), (Start: 46 @56612 has 29 MA's), (52, 56654),

Gene: Donny\_68 Start: 58302, Stop: 58586, Start Num: 22

Candidate Starts for Donny\_68:

(Start: 22 @58302 has 4 MA's), (Start: 28 @58329 has 3 MA's), (Start: 33 @58338 has 27 MA's), (48, 58404), (56, 58482), (62, 58536), (64, 58551), (66, 58572),

Gene: DuchessDung\_67 Start: 56370, Stop: 56672, Start Num: 16

Candidate Starts for DuchessDung\_67:

(Start: 16 @56370 has 73 MA's), (Start: 33 @56424 has 27 MA's), (Start: 46 @56493 has 29 MA's), (52, 56535),

Gene: Duggie\_68 Start: 57082, Stop: 57333, Start Num: 29

Candidate Starts for Duggie\_68:

(Start: 29 @57082 has 35 MA's), (Start: 33 @57091 has 27 MA's), (51, 57181), (64, 57304),

Gene: Durga\_70 Start: 57651, Stop: 57899, Start Num: 33

Candidate Starts for Durga\_70:

(Start: 16 @57597 has 73 MA's), (Start: 33 @57651 has 27 MA's), (Start: 46 @57720 has 29 MA's), (52, 57762),

Gene: Eaglehorse\_64 Start: 55458, Stop: 55718, Start Num: 29

Candidate Starts for Eaglehorse\_64:

(Start: 29 @55458 has 35 MA's), (Start: 33 @55467 has 27 MA's), (Start: 42 @55512 has 4 MA's), (47, 55539), (51, 55566), (54, 55593), (58, 55635), (61, 55668), (63, 55677), (64, 55689),

Gene: EastView9101\_68 Start: 58038, Stop: 58286, Start Num: 33

Candidate Starts for EastView9101\_68:

(Start: 22 @58002 has 4 MA's), (Start: 28 @58029 has 3 MA's), (Start: 33 @58038 has 27 MA's), (48, 58104), (56, 58182), (62, 58236), (66, 58272),

Gene: Emiris\_69 Start: 57560, Stop: 57808, Start Num: 33

Candidate Starts for Emiris\_69:

(Start: 16 @57506 has 73 MA's), (Start: 33 @57560 has 27 MA's), (Start: 46 @57629 has 29 MA's), (52, 57671),

Gene: EmpTee\_67 Start: 57028, Stop: 57300, Start Num: 19

Candidate Starts for EmpTee\_67:

(Start: 19 @57028 has 106 MA's), (Start: 29 @57049 has 35 MA's), (Start: 33 @57058 has 27 MA's), (47, 57121), (51, 57148), (64, 57271),

Gene: Eremos\_67 Start: 57023, Stop: 57295, Start Num: 19

Candidate Starts for Eremos\_67:

(Start: 19 @57023 has 106 MA's), (Start: 29 @57044 has 35 MA's), (Start: 33 @57053 has 27 MA's), (47, 57116), (51, 57143), (64, 57266),

Gene: Etaye\_67 Start: 57703, Stop: 57951, Start Num: 33

Candidate Starts for Etaye\_67:

(Start: 16 @57649 has 73 MA's), (Start: 33 @57703 has 27 MA's), (Start: 46 @57772 has 29 MA's), (52, 57814),

Gene: Fang\_69 Start: 57339, Stop: 57641, Start Num: 16

Candidate Starts for Fang\_69:

(Start: 16 @57339 has 73 MA's), (Start: 33 @57393 has 27 MA's), (Start: 46 @57462 has 29 MA's), (52, 57504),

Gene: Faze9\_63 Start: 55651, Stop: 55857, Start Num: 42

Candidate Starts for Faze9\_63:

(Start: 29 @55597 has 35 MA's), (Start: 33 @55606 has 27 MA's), (Start: 42 @55651 has 4 MA's), (47, 55678), (51, 55705), (54, 55732), (58, 55774), (61, 55807), (63, 55816), (64, 55828),

Gene: FluffyNinja\_68 Start: 57071, Stop: 57373, Start Num: 16

Candidate Starts for FluffyNinja\_68:

(Start: 16 @57071 has 73 MA's), (Start: 33 @57125 has 27 MA's), (Start: 46 @57194 has 29 MA's), (52, 57236),

Gene: Frankicide\_66 Start: 56878, Stop: 57120, Start Num: 33

Candidate Starts for Frankicide\_66:

(Start: 19 @56848 has 106 MA's), (Start: 29 @56869 has 35 MA's), (Start: 33 @56878 has 27 MA's), (51, 56968), (64, 57091),

Gene: FrenchFry\_65 Start: 55583, Stop: 55843, Start Num: 29

Candidate Starts for FrenchFry\_65:

(Start: 29 @55583 has 35 MA's), (Start: 33 @55592 has 27 MA's), (Start: 42 @55637 has 4 MA's), (47, 55664), (51, 55691), (54, 55718), (58, 55760), (61, 55793), (63, 55802), (64, 55814),

Gene: Freya\_65 Start: 56508, Stop: 56780, Start Num: 19

Candidate Starts for Freya\_65:

(Start: 19 @56508 has 106 MA's), (Start: 29 @56529 has 35 MA's), (Start: 33 @56538 has 27 MA's), (47, 56601), (51, 56628), (64, 56751),

Gene: FriarPreacher\_66 Start: 56890, Stop: 57192, Start Num: 16

Candidate Starts for FriarPreacher\_66:

(Start: 16 @56890 has 73 MA's), (Start: 33 @56944 has 27 MA's), (Start: 46 @57013 has 29 MA's), (52, 57055),

Gene: Fringe\_72 Start: 57683, Stop: 57955, Start Num: 19

Candidate Starts for Fringe\_72:

(Start: 19 @57683 has 106 MA's), (Start: 29 @57704 has 35 MA's), (Start: 33 @57713 has 27 MA's), (47, 57776), (51, 57803), (64, 57926),

Gene: FugateOSU\_68 Start: 57843, Stop: 58145, Start Num: 16

Candidate Starts for FugateOSU\_68:

(Start: 16 @57843 has 73 MA's), (Start: 33 @57897 has 27 MA's), (Start: 46 @57966 has 29 MA's), (52, 58008),

Gene: Gadget\_69 Start: 57577, Stop: 57864, Start Num: 23

Candidate Starts for Gadget\_69:

(2, 57355), (3, 57373), (4, 57385), (6, 57430), (17, 57565), (Start: 23 @57577 has 21 MA's), (26, 57595), (Start: 31 @57607 has 1 MA's), (Start: 34 @57616 has 14 MA's), (Start: 36 @57625 has 5 MA's), (56, 57769), (63, 57826),

Gene: Gareth\_68 Start: 57304, Stop: 57576, Start Num: 19

Candidate Starts for Gareth\_68:

(Start: 19 @57304 has 106 MA's), (Start: 29 @57325 has 35 MA's), (Start: 33 @57334 has 27 MA's), (47, 57397), (51, 57424), (64, 57547),

Gene: GeneCoco\_68 Start: 57462, Stop: 57641, Start Num: 46

Candidate Starts for GeneCoco\_68:

(Start: 16 @57339 has 73 MA's), (Start: 33 @57393 has 27 MA's), (Start: 46 @57462 has 29 MA's), (52, 57504),

Gene: Gervas\_69 Start: 57701, Stop: 57958, Start Num: 31

Candidate Starts for Gervas\_69:

(2, 57449), (3, 57467), (4, 57479), (6, 57524), (17, 57659), (Start: 23 @57671 has 21 MA's), (26, 57689), (Start: 31 @57701 has 1 MA's), (Start: 34 @57710 has 14 MA's), (Start: 36 @57719 has 5 MA's), (56, 57863), (63, 57920),

Gene: Giraffe\_68 Start: 57299, Stop: 57571, Start Num: 19

Candidate Starts for Giraffe\_68:

(Start: 19 @57299 has 106 MA's), (Start: 29 @57320 has 35 MA's), (Start: 33 @57329 has 27 MA's), (47, 57392), (51, 57419), (64, 57542),

Gene: Glass\_65 Start: 55585, Stop: 55845, Start Num: 29

Candidate Starts for Glass\_65:

(Start: 29 @55585 has 35 MA's), (Start: 33 @55594 has 27 MA's), (Start: 42 @55639 has 4 MA's), (47, 55666), (51, 55693), (54, 55720), (58, 55762), (61, 55795), (63, 55804), (64, 55816),

Gene: GlenHope\_69 Start: 57237, Stop: 57524, Start Num: 23

Candidate Starts for GlenHope\_69:

(2, 57015), (3, 57033), (4, 57045), (6, 57090), (17, 57225), (Start: 23 @57237 has 21 MA's), (26, 57255), (Start: 31 @57267 has 1 MA's), (Start: 34 @57276 has 14 MA's), (Start: 36 @57285 has 5 MA's), (56, 57429), (63, 57486),

Gene: Godines\_65 Start: 55844, Stop: 56104, Start Num: 29

Candidate Starts for Godines\_65:

(Start: 29 @55844 has 35 MA's), (Start: 33 @55853 has 27 MA's), (Start: 42 @55898 has 4 MA's), (47, 55925), (51, 55952), (54, 55979), (58, 56021), (61, 56054), (63, 56063), (64, 56075),

Gene: Gophee\_69 Start: 57290, Stop: 57562, Start Num: 19

Candidate Starts for Gophee\_69:

(Start: 19 @57290 has 106 MA's), (Start: 29 @57311 has 35 MA's), (Start: 33 @57320 has 27 MA's), (47, 57383), (51, 57410), (64, 57533),

Gene: Grand2040\_66 Start: 57405, Stop: 57584, Start Num: 46

Candidate Starts for Grand2040\_66:

(Start: 16 @57282 has 73 MA's), (Start: 33 @57336 has 27 MA's), (Start: 46 @57405 has 29 MA's), (52, 57447),

Gene: Gyarad\_0067 Start: 56782, Stop: 56961, Start Num: 46

Candidate Starts for Gyarad\_0067:

(Start: 16 @56659 has 73 MA's), (Start: 33 @56713 has 27 MA's), (Start: 46 @56782 has 29 MA's), (52, 56824),

Gene: HSavage\_66 Start: 56826, Stop: 57098, Start Num: 19

Candidate Starts for HSavage\_66:

(Start: 19 @56826 has 106 MA's), (Start: 29 @56847 has 35 MA's), (Start: 33 @56856 has 27 MA's), (47, 56919), (51, 56946), (64, 57069),

Gene: Haimas\_66 Start: 56790, Stop: 57092, Start Num: 16

Candidate Starts for Haimas\_66:

(Start: 16 @56790 has 73 MA's), (Start: 33 @56844 has 27 MA's), (Start: 46 @56913 has 29 MA's), (52, 56955),

Gene: Haleema\_67 Start: 56845, Stop: 57117, Start Num: 19

Candidate Starts for Haleema\_67:

(Start: 19 @56845 has 106 MA's), (Start: 29 @56866 has 35 MA's), (Start: 33 @56875 has 27 MA's), (47, 56938), (51, 56965), (64, 57088),

Gene: Halfpint\_68 Start: 57027, Stop: 57275, Start Num: 34

Candidate Starts for Halfpint\_68:

(2, 56766), (3, 56784), (4, 56796), (6, 56841), (17, 56976), (Start: 23 @56988 has 21 MA's), (26, 57006), (Start: 31 @57018 has 1 MA's), (Start: 34 @57027 has 14 MA's), (Start: 36 @57036 has 5 MA's), (56, 57180), (63, 57237),

Gene: Hamish\_65 Start: 56845, Stop: 57024, Start Num: 46

Candidate Starts for Hamish\_65:

(Start: 16 @56722 has 73 MA's), (Start: 33 @56776 has 27 MA's), (Start: 46 @56845 has 29 MA's), (52, 56887),

Gene: Hartsy\_67 Start: 56987, Stop: 57259, Start Num: 19

Candidate Starts for Hartsy\_67:

(Start: 19 @56987 has 106 MA's), (Start: 29 @57008 has 35 MA's), (Start: 33 @57017 has 27 MA's), (47, 57080), (51, 57107), (64, 57230),

Gene: Harvey\_65 Start: 56819, Stop: 57121, Start Num: 16

Candidate Starts for Harvey\_65:

(Start: 16 @56819 has 73 MA's), (Start: 33 @56873 has 27 MA's), (Start: 46 @56942 has 29 MA's), (52, 56984),

Gene: HarveySr\_67 Start: 56727, Stop: 56969, Start Num: 27

Candidate Starts for HarveySr\_67:

(10, 56631), (13, 56685), (Start: 27 @56727 has 2 MA's), (Start: 34 @56739 has 14 MA's), (53, 56841), (56, 56877), (63, 56934),

Gene: Hashim76\_72 Start: 58554, Stop: 58817, Start Num: 29

Candidate Starts for Hashim76\_72:

(21, 58521), (Start: 29 @58554 has 35 MA's), (Start: 33 @58563 has 27 MA's), (53, 58665), (55, 58686), (67, 58797),

Gene: Heathcliff\_68 Start: 57204, Stop: 57491, Start Num: 23

Candidate Starts for Heathcliff\_68:

(2, 56982), (3, 57000), (4, 57012), (6, 57057), (17, 57192), (Start: 23 @57204 has 21 MA's), (26, 57222), (Start: 31 @57234 has 1 MA's), (Start: 34 @57243 has 14 MA's), (Start: 36 @57252 has 5 MA's), (56, 57396), (63, 57453),

Gene: Hedgerow\_64 Start: 55555, Stop: 55815, Start Num: 29

Candidate Starts for Hedgerow\_64:

(Start: 29 @55555 has 35 MA's), (Start: 33 @55564 has 27 MA's), (Start: 42 @55609 has 4 MA's), (47, 55636), (51, 55663), (54, 55690), (58, 55732), (61, 55765), (63, 55774), (64, 55786),

Gene: Held\_66 Start: 56793, Stop: 57095, Start Num: 16

Candidate Starts for Held\_66:

(Start: 16 @56793 has 73 MA's), (Start: 33 @56847 has 27 MA's), (Start: 46 @56916 has 29 MA's), (52, 56958),

Gene: HenryJackson\_68 Start: 57328, Stop: 57600, Start Num: 19

Candidate Starts for HenryJackson\_68:

(Start: 19 @57328 has 106 MA's), (Start: 29 @57349 has 35 MA's), (Start: 33 @57358 has 27 MA's), (47, 57421), (48, 57424), (51, 57448), (64, 57571),

Gene: Hertubise\_67 Start: 57094, Stop: 57366, Start Num: 19

Candidate Starts for Hertubise\_67:

(Start: 19 @57094 has 106 MA's), (Start: 29 @57115 has 35 MA's), (Start: 33 @57124 has 27 MA's), (47, 57187), (51, 57214), (64, 57337),

Gene: Hetaeria\_67 Start: 57034, Stop: 57306, Start Num: 19

Candidate Starts for Hetaeria\_67:

(Start: 19 @57034 has 106 MA's), (Start: 29 @57055 has 35 MA's), (Start: 33 @57064 has 27 MA's), (47, 57127), (51, 57154), (64, 57277),

Gene: HighStump\_69 Start: 57296, Stop: 57598, Start Num: 16

Candidate Starts for HighStump\_69:

(Start: 16 @57296 has 73 MA's), (Start: 33 @57350 has 27 MA's), (Start: 46 @57419 has 29 MA's), (52, 57461),

Gene: Holeinone\_64 Start: 55443, Stop: 55703, Start Num: 29

Candidate Starts for Holeinone\_64:

(Start: 29 @55443 has 35 MA's), (Start: 33 @55452 has 27 MA's), (Start: 42 @55497 has 4 MA's), (47, 55524), (51, 55551), (54, 55578), (58, 55620), (61, 55653), (63, 55662), (64, 55674),

Gene: Horchata\_65 Start: 56937, Stop: 57116, Start Num: 46

Candidate Starts for Horchata\_65:

(Start: 16 @56814 has 73 MA's), (Start: 33 @56868 has 27 MA's), (Start: 46 @56937 has 29 MA's), (52, 56979),

Gene: Hosp\_059 Start: 54555, Stop: 54755, Start Num: 46

Candidate Starts for Hosp\_059:

(Start: 33 @54504 has 27 MA's), (Start: 46 @54555 has 29 MA's), (47, 54558), (48, 54561), (50, 54573), (58, 54654),

Gene: ImtiyazSitla\_68 Start: 57146, Stop: 57325, Start Num: 46

Candidate Starts for ImtiyazSitla\_68:

(Start: 16 @57023 has 73 MA's), (Start: 33 @57077 has 27 MA's), (Start: 46 @57146 has 29 MA's), (52, 57188),

Gene: Indlovu\_65 Start: 58320, Stop: 58526, Start Num: 38

Candidate Starts for Indlovu\_65:

(Start: 28 @58278 has 3 MA's), (Start: 38 @58320 has 1 MA's), (Start: 46 @58353 has 29 MA's), (48, 58359), (50, 58371),

Gene: Inverness\_66 Start: 56946, Stop: 57125, Start Num: 46

Candidate Starts for Inverness\_66:

(Start: 16 @56823 has 73 MA's), (Start: 33 @56877 has 27 MA's), (Start: 46 @56946 has 29 MA's), (52, 56988),

Gene: Iridoclysis\_67 Start: 57107, Stop: 57409, Start Num: 16

Candidate Starts for Iridoclysis\_67:

(Start: 16 @57107 has 73 MA's), (Start: 33 @57161 has 27 MA's), (Start: 46 @57230 has 29 MA's), (52, 57272),

Gene: IsaacEli\_69 Start: 57317, Stop: 57589, Start Num: 19

Candidate Starts for IsaacEli\_69:

(Start: 19 @57317 has 106 MA's), (Start: 29 @57338 has 35 MA's), (Start: 33 @57347 has 27 MA's), (47, 57410), (51, 57437), (64, 57560),

Gene: ItsyBitsy1\_63 Start: 55673, Stop: 55933, Start Num: 29

Candidate Starts for ItsyBitsy1\_63:

(Start: 29 @55673 has 35 MA's), (Start: 33 @55682 has 27 MA's), (Start: 42 @55727 has 4 MA's), (47, 55754), (51, 55781), (54, 55808), (58, 55850), (61, 55883), (63, 55892), (64, 55904),

Gene: JDog\_67 Start: 57338, Stop: 57610, Start Num: 19

Candidate Starts for JDog\_67:

(Start: 19 @57338 has 106 MA's), (Start: 29 @57359 has 35 MA's), (Start: 33 @57368 has 27 MA's), (47, 57431), (51, 57458), (64, 57581),

Gene: JacAttac\_68 Start: 56782, Stop: 57054, Start Num: 19

Candidate Starts for JacAttac\_68:

(Start: 19 @56782 has 106 MA's), (Start: 29 @56803 has 35 MA's), (Start: 33 @56812 has 27 MA's), (47, 56875), (51, 56902), (64, 57025),

Gene: Jackstina\_64 Start: 57129, Stop: 57416, Start Num: 23

Candidate Starts for Jackstina\_64:

(2, 56907), (3, 56925), (4, 56937), (6, 56982), (17, 57117), (Start: 23 @57129 has 21 MA's), (26, 57147), (Start: 31 @57159 has 1 MA's), (Start: 34 @57168 has 14 MA's), (Start: 36 @57177 has 5 MA's), (56, 57321), (63, 57378),

Gene: JakeO\_69 Start: 57084, Stop: 57335, Start Num: 29

Candidate Starts for JakeO\_69:

(Start: 29 @57084 has 35 MA's), (Start: 33 @57093 has 27 MA's), (47, 57156), (51, 57183), (64, 57306),

Gene: JangoPhett\_102 Start: 57123, Stop: 57395, Start Num: 19

Candidate Starts for JangoPhett\_102:

(Start: 19 @57123 has 106 MA's), (Start: 29 @57144 has 35 MA's), (Start: 33 @57153 has 27 MA's), (47, 57216), (51, 57243), (64, 57366),

Gene: Jillium\_68 Start: 57323, Stop: 57595, Start Num: 19

Candidate Starts for Jillium\_68:

(Start: 19 @57323 has 106 MA's), (Start: 29 @57344 has 35 MA's), (Start: 33 @57353 has 27 MA's), (47, 57416), (51, 57443), (64, 57566),

Gene: Jolie1\_061 Start: 56473, Stop: 56673, Start Num: 46

Candidate Starts for Jolie1\_061:

(Start: 33 @56422 has 27 MA's), (Start: 46 @56473 has 29 MA's), (47, 56476), (48, 56479), (50, 56491), (58, 56572),

Gene: KLUcky39\_66 Start: 56669, Stop: 56941, Start Num: 19

Candidate Starts for KLUcky39\_66:

(Start: 19 @56669 has 106 MA's), (Start: 29 @56690 has 35 MA's), (Start: 33 @56699 has 27 MA's), (47, 56762), (51, 56789), (64, 56912),

Gene: Kahve\_68 Start: 57325, Stop: 57597, Start Num: 19

Candidate Starts for Kahve\_68:

(Start: 19 @57325 has 106 MA's), (Start: 29 @57346 has 35 MA's), (Start: 33 @57355 has 27 MA's), (47, 57418), (48, 57421), (51, 57445), (64, 57568),

Gene: Kailash\_66 Start: 57214, Stop: 57516, Start Num: 16

Candidate Starts for Kailash\_66:

(Start: 16 @57214 has 73 MA's), (Start: 33 @57268 has 27 MA's), (Start: 46 @57337 has 29 MA's), (52, 57379),

Gene: Kaleb\_65 Start: 55644, Stop: 55850, Start Num: 42

Candidate Starts for Kaleb\_65:

(Start: 29 @55590 has 35 MA's), (Start: 33 @55599 has 27 MA's), (Start: 42 @55644 has 4 MA's), (47, 55671), (51, 55698), (54, 55725), (58, 55767), (61, 55800), (63, 55809), (64, 55821),

Gene: Kamiyu\_68 Start: 57245, Stop: 57493, Start Num: 34

Candidate Starts for Kamiyu\_68:

(2, 56984), (3, 57002), (4, 57014), (6, 57059), (17, 57194), (Start: 23 @57206 has 21 MA's), (26, 57224), (Start: 31 @57236 has 1 MA's), (Start: 34 @57245 has 14 MA's), (Start: 36 @57254 has 5 MA's), (56, 57398), (63, 57455),

Gene: Katniss\_69 Start: 56765, Stop: 57037, Start Num: 19

Candidate Starts for Katniss\_69:

(Start: 19 @56765 has 106 MA's), (Start: 29 @56786 has 35 MA's), (Start: 33 @56795 has 27 MA's), (47, 56858), (51, 56885), (64, 57008),

Gene: KayaCho\_61 Start: 56583, Stop: 56783, Start Num: 46

Candidate Starts for KayaCho\_61:

(Start: 33 @56532 has 27 MA's), (Start: 46 @56583 has 29 MA's), (47, 56586), (48, 56589), (50, 56601), (58, 56682),

Gene: Keitherie\_70 Start: 57387, Stop: 57659, Start Num: 19

Candidate Starts for Keitherie\_70:

(Start: 19 @57387 has 106 MA's), (Start: 29 @57408 has 35 MA's), (Start: 33 @57417 has 27 MA's), (47, 57480), (51, 57507), (64, 57630),

Gene: Kheth\_64 Start: 55502, Stop: 55762, Start Num: 29

Candidate Starts for Kheth\_64:

(Start: 29 @55502 has 35 MA's), (Start: 33 @55511 has 27 MA's), (Start: 42 @55556 has 4 MA's), (47, 55583), (51, 55610), (54, 55637), (58, 55679), (61, 55712), (63, 55721), (64, 55733),

Gene: Kikipoo\_69 Start: 57317, Stop: 57589, Start Num: 19

Candidate Starts for Kikipoo\_69:

(Start: 19 @57317 has 106 MA's), (Start: 29 @57338 has 35 MA's), (Start: 33 @57347 has 27 MA's), (47, 57410), (51, 57437), (64, 57560),

Gene: Kimbrough\_69 Start: 57367, Stop: 57639, Start Num: 19

Candidate Starts for Kimbrough\_69:

(Start: 19 @57367 has 106 MA's), (Start: 29 @57388 has 35 MA's), (Start: 33 @57397 has 27 MA's), (47, 57460), (51, 57487), (64, 57610),



Gene: KingTut\_59 Start: 53521, Stop: 53823, Start Num: 16  
Candidate Starts for KingTut\_59:  
(Start: 16 @53521 has 73 MA's), (Start: 33 @53575 has 27 MA's), (Start: 46 @53644 has 29 MA's),  
(52, 53686),

Gene: KingVeVeVe\_66 Start: 56324, Stop: 56626, Start Num: 16  
Candidate Starts for KingVeVeVe\_66:  
(Start: 16 @56324 has 73 MA's), (Start: 33 @56378 has 27 MA's), (Start: 46 @56447 has 29 MA's),  
(52, 56489),

Gene: KlimbOn\_67 Start: 56826, Stop: 57098, Start Num: 19  
Candidate Starts for KlimbOn\_67:  
(Start: 19 @56826 has 106 MA's), (Start: 29 @56847 has 35 MA's), (Start: 33 @56856 has 27 MA's),  
(47, 56919), (51, 56946), (64, 57069),

Gene: Kloppinator\_68 Start: 56982, Stop: 57284, Start Num: 16  
Candidate Starts for Kloppinator\_68:  
(Start: 16 @56982 has 73 MA's), (Start: 33 @57036 has 27 MA's), (Start: 46 @57105 has 29 MA's),  
(52, 57147),

Gene: Kronus\_68 Start: 58341, Stop: 58589, Start Num: 34  
Candidate Starts for Kronus\_68:  
(2, 58080), (3, 58098), (4, 58110), (6, 58155), (17, 58290), (Start: 23 @58302 has 21 MA's), (26,  
58320), (Start: 31 @58332 has 1 MA's), (Start: 34 @58341 has 14 MA's), (Start: 36 @58350 has 5  
MA's), (56, 58494), (63, 58551),

Gene: Kwadwo\_67 Start: 56776, Stop: 57048, Start Num: 19  
Candidate Starts for Kwadwo\_67:  
(Start: 19 @56776 has 106 MA's), (Start: 29 @56797 has 35 MA's), (Start: 33 @56806 has 27 MA's),  
(47, 56869), (51, 56896), (64, 57019),

Gene: Kwksand96\_68 Start: 56903, Stop: 57205, Start Num: 16  
Candidate Starts for Kwksand96\_68:  
(Start: 16 @56903 has 73 MA's), (Start: 33 @56957 has 27 MA's), (Start: 46 @57026 has 29 MA's),  
(52, 57068),

Gene: Labeouficaum\_68 Start: 56891, Stop: 57193, Start Num: 16  
Candidate Starts for Labeouficaum\_68:  
(Start: 16 @56891 has 73 MA's), (Start: 33 @56945 has 27 MA's), (Start: 46 @57014 has 29 MA's),  
(52, 57056),

Gene: Lars\_65 Start: 55572, Stop: 55823, Start Num: 33  
Candidate Starts for Lars\_65:  
(Start: 29 @55563 has 35 MA's), (Start: 33 @55572 has 27 MA's), (Start: 42 @55617 has 4 MA's),  
(47, 55644), (51, 55671), (54, 55698), (58, 55740), (61, 55773), (63, 55782), (64, 55794),

Gene: Lasso\_67 Start: 57164, Stop: 57343, Start Num: 46  
Candidate Starts for Lasso\_67:  
(Start: 16 @57041 has 73 MA's), (Start: 33 @57095 has 27 MA's), (Start: 46 @57164 has 29 MA's),  
(52, 57206),

Gene: Laurie\_64 Start: 55263, Stop: 55523, Start Num: 29

Candidate Starts for Laurie\_64:

(Start: 29 @55263 has 35 MA's), (Start: 33 @55272 has 27 MA's), (Start: 42 @55317 has 4 MA's), (47, 55344), (51, 55371), (54, 55398), (58, 55440), (61, 55473), (63, 55482), (64, 55494),

Gene: LeeLot\_67 Start: 57397, Stop: 57699, Start Num: 16

Candidate Starts for LeeLot\_67:

(Start: 16 @57397 has 73 MA's), (Start: 33 @57451 has 27 MA's), (Start: 46 @57520 has 29 MA's), (52, 57562),

Gene: Lego3393\_65 Start: 57349, Stop: 57651, Start Num: 16

Candidate Starts for Lego3393\_65:

(Start: 16 @57349 has 73 MA's), (Start: 33 @57403 has 27 MA's), (Start: 46 @57472 has 29 MA's), (52, 57514),

Gene: Legolas\_69 Start: 57190, Stop: 57438, Start Num: 33

Candidate Starts for Legolas\_69:

(Start: 16 @57136 has 73 MA's), (Start: 33 @57190 has 27 MA's), (Start: 46 @57259 has 29 MA's), (52, 57301),

Gene: LemonSlice\_68 Start: 56788, Stop: 57090, Start Num: 16

Candidate Starts for LemonSlice\_68:

(Start: 16 @56788 has 73 MA's), (Start: 33 @56842 has 27 MA's), (Start: 46 @56911 has 29 MA's), (52, 56953),

Gene: Lephleur\_64 Start: 55428, Stop: 55688, Start Num: 29

Candidate Starts for Lephleur\_64:

(Start: 29 @55428 has 35 MA's), (Start: 33 @55437 has 27 MA's), (Start: 42 @55482 has 4 MA's), (47, 55509), (51, 55536), (54, 55563), (58, 55605), (61, 55638), (63, 55647), (64, 55659),

Gene: LestyG\_66 Start: 56771, Stop: 57019, Start Num: 34

Candidate Starts for LestyG\_66:

(2, 56510), (3, 56528), (4, 56540), (6, 56585), (17, 56720), (Start: 23 @56732 has 21 MA's), (26, 56750), (Start: 31 @56762 has 1 MA's), (Start: 34 @56771 has 14 MA's), (Start: 36 @56780 has 5 MA's), (56, 56924), (63, 56981),

Gene: LilMcDreamy\_64 Start: 57921, Stop: 58187, Start Num: 29

Candidate Starts for LilMcDreamy\_64:

(Start: 29 @57921 has 35 MA's), (Start: 33 @57930 has 27 MA's), (40, 57972), (45, 57993), (Start: 46 @57999 has 29 MA's), (53, 58047),

Gene: LittleMunchkin\_63 Start: 53357, Stop: 53581, Start Num: 32

Candidate Starts for LittleMunchkin\_63:

(Start: 32 @53357 has 1 MA's), (52, 53456), (55, 53483), (59, 53531), (60, 53543), (65, 53570),

Gene: LizLemon\_64 Start: 55590, Stop: 55850, Start Num: 29

Candidate Starts for LizLemon\_64:

(Start: 29 @55590 has 35 MA's), (Start: 33 @55599 has 27 MA's), (Start: 42 @55644 has 4 MA's), (47, 55671), (51, 55698), (54, 55725), (58, 55767), (61, 55800), (63, 55809), (64, 55821),

Gene: Longacauda\_69 Start: 57172, Stop: 57444, Start Num: 19

Candidate Starts for Longacauda\_69:

(Start: 19 @57172 has 106 MA's), (Start: 29 @57193 has 35 MA's), (Start: 33 @57202 has 27 MA's), (47, 57265), (51, 57292), (64, 57415),

Gene: LostAndPhound\_67 Start: 57395, Stop: 57643, Start Num: 33  
Candidate Starts for LostAndPhound\_67:  
(Start: 16 @57341 has 73 MA's), (Start: 33 @57395 has 27 MA's), (Start: 46 @57464 has 29 MA's),  
(52, 57506),

Gene: LuckyMarjie\_65 Start: 56527, Stop: 56799, Start Num: 19  
Candidate Starts for LuckyMarjie\_65:  
(Start: 19 @56527 has 106 MA's), (Start: 29 @56548 has 35 MA's), (Start: 33 @56557 has 27 MA's),  
(47, 56620), (51, 56647), (64, 56770),

Gene: Lulumae\_65 Start: 56511, Stop: 56783, Start Num: 19  
Candidate Starts for Lulumae\_65:  
(Start: 19 @56511 has 106 MA's), (Start: 29 @56532 has 35 MA's), (Start: 33 @56541 has 27 MA's),  
(47, 56604), (51, 56631), (64, 56754),

Gene: Lulwa\_66 Start: 56139, Stop: 56381, Start Num: 33  
Candidate Starts for Lulwa\_66:  
(Start: 19 @56109 has 106 MA's), (Start: 29 @56130 has 35 MA's), (Start: 33 @56139 has 27 MA's),  
(47, 56202), (51, 56229), (64, 56352),

Gene: Lumine\_69 Start: 56995, Stop: 57267, Start Num: 19  
Candidate Starts for Lumine\_69:  
(Start: 19 @56995 has 106 MA's), (Start: 29 @57016 has 35 MA's), (Start: 33 @57025 has 27 MA's),  
(47, 57088), (51, 57115), (64, 57238),

Gene: MRabcd\_67 Start: 57164, Stop: 57412, Start Num: 33  
Candidate Starts for MRabcd\_67:  
(Start: 16 @57110 has 73 MA's), (Start: 33 @57164 has 27 MA's), (Start: 46 @57233 has 29 MA's),  
(52, 57275),

Gene: Mag7\_66 Start: 56812, Stop: 57060, Start Num: 33  
Candidate Starts for Mag7\_66:  
(Start: 16 @56758 has 73 MA's), (Start: 33 @56812 has 27 MA's), (Start: 46 @56881 has 29 MA's),  
(52, 56923),

Gene: Mana\_66 Start: 56783, Stop: 57085, Start Num: 16  
Candidate Starts for Mana\_66:  
(Start: 16 @56783 has 73 MA's), (Start: 33 @56837 has 27 MA's), (Start: 46 @56906 has 29 MA's),  
(52, 56948),

Gene: Manad\_67 Start: 57078, Stop: 57350, Start Num: 19  
Candidate Starts for Manad\_67:  
(Start: 19 @57078 has 106 MA's), (Start: 29 @57099 has 35 MA's), (Start: 33 @57108 has 27 MA's),  
(47, 57171), (51, 57198), (64, 57321),

Gene: Marley1013\_69 Start: 58226, Stop: 58441, Start Num: 36  
Candidate Starts for Marley1013\_69:  
(9, 58082), (Start: 31 @58208 has 1 MA's), (Start: 34 @58217 has 14 MA's), (Start: 36 @58226 has 5  
MA's), (47, 58277), (63, 58403),

Gene: Maru\_67 Start: 57222, Stop: 57524, Start Num: 16  
Candidate Starts for Maru\_67:

(Start: 16 @57222 has 73 MA's), (Start: 33 @57276 has 27 MA's), (Start: 46 @57345 has 29 MA's), (52, 57387),

Gene: Maskar\_68 Start: 57146, Stop: 57325, Start Num: 46

Candidate Starts for Maskar\_68:

(Start: 16 @57023 has 73 MA's), (Start: 33 @57077 has 27 MA's), (Start: 46 @57146 has 29 MA's), (52, 57188),

Gene: MasterPo\_65 Start: 55460, Stop: 55720, Start Num: 29

Candidate Starts for MasterPo\_65:

(Start: 29 @55460 has 35 MA's), (Start: 33 @55469 has 27 MA's), (Start: 42 @55514 has 4 MA's), (47, 55541), (51, 55568), (54, 55595), (58, 55637), (61, 55670), (63, 55679), (64, 55691),

Gene: Matalotodo\_67 Start: 57745, Stop: 57924, Start Num: 46

Candidate Starts for Matalotodo\_67:

(Start: 16 @57622 has 73 MA's), (Start: 33 @57676 has 27 MA's), (Start: 46 @57745 has 29 MA's), (52, 57787),

Gene: Mcshane\_67 Start: 56789, Stop: 57061, Start Num: 19

Candidate Starts for Mcshane\_67:

(Start: 19 @56789 has 106 MA's), (Start: 29 @56810 has 35 MA's), (Start: 33 @56819 has 27 MA's), (47, 56882), (51, 56909), (64, 57032),

Gene: Mecca\_68 Start: 57354, Stop: 57626, Start Num: 19

Candidate Starts for Mecca\_68:

(Start: 19 @57354 has 106 MA's), (Start: 29 @57375 has 35 MA's), (Start: 33 @57384 has 27 MA's), (47, 57447), (51, 57474), (64, 57597),

Gene: Megatron\_68 Start: 57304, Stop: 57576, Start Num: 19

Candidate Starts for Megatron\_68:

(Start: 19 @57304 has 106 MA's), (Start: 29 @57325 has 35 MA's), (Start: 33 @57334 has 27 MA's), (47, 57397), (51, 57424), (64, 57547),

Gene: Melc17\_65 Start: 57547, Stop: 57726, Start Num: 46

Candidate Starts for Melc17\_65:

(14, 57415), (Start: 33 @57478 has 27 MA's), (Start: 46 @57547 has 29 MA's), (52, 57589),

Gene: MelsMeow\_67 Start: 57199, Stop: 57378, Start Num: 46

Candidate Starts for MelsMeow\_67:

(Start: 16 @57076 has 73 MA's), (Start: 33 @57130 has 27 MA's), (Start: 46 @57199 has 29 MA's), (52, 57241),

Gene: Mesh1\_68 Start: 57358, Stop: 57660, Start Num: 16

Candidate Starts for Mesh1\_68:

(Start: 16 @57358 has 73 MA's), (Start: 33 @57412 has 27 MA's), (Start: 46 @57481 has 29 MA's), (52, 57523),

Gene: MichaelPhcott\_66 Start: 56755, Stop: 57057, Start Num: 16

Candidate Starts for MichaelPhcott\_66:

(Start: 16 @56755 has 73 MA's), (Start: 33 @56809 has 27 MA's), (Start: 46 @56878 has 29 MA's), (52, 56920),

Gene: Mikota\_65 Start: 56445, Stop: 56624, Start Num: 46

Candidate Starts for Mikota\_65:

(Start: 16 @56322 has 73 MA's), (Start: 33 @56376 has 27 MA's), (Start: 46 @56445 has 29 MA's), (52, 56487),

Gene: MiniBoss\_65 Start: 56250, Stop: 56429, Start Num: 46

Candidate Starts for MiniBoss\_65:

(Start: 16 @56127 has 73 MA's), (Start: 33 @56181 has 27 MA's), (Start: 46 @56250 has 29 MA's), (52, 56292),

Gene: MitKao\_67 Start: 56792, Stop: 57094, Start Num: 16

Candidate Starts for MitKao\_67:

(Start: 16 @56792 has 73 MA's), (Start: 33 @56846 has 27 MA's), (Start: 46 @56915 has 29 MA's), (52, 56957),

Gene: MmasiCarm\_69 Start: 57696, Stop: 57944, Start Num: 34

Candidate Starts for MmasiCarm\_69:

(2, 57435), (3, 57453), (4, 57465), (6, 57510), (17, 57645), (Start: 23 @57657 has 21 MA's), (26, 57675), (Start: 31 @57687 has 1 MA's), (Start: 34 @57696 has 14 MA's), (Start: 36 @57705 has 5 MA's), (56, 57849), (63, 57906),

Gene: Morgushi\_66 Start: 56781, Stop: 57083, Start Num: 16

Candidate Starts for Morgushi\_66:

(Start: 16 @56781 has 73 MA's), (Start: 33 @56835 has 27 MA's), (Start: 46 @56904 has 29 MA's), (52, 56946),

Gene: Mortcellus\_68 Start: 58358, Stop: 58606, Start Num: 34

Candidate Starts for Mortcellus\_68:

(2, 58097), (3, 58115), (4, 58127), (6, 58172), (17, 58307), (Start: 23 @58319 has 21 MA's), (26, 58337), (Start: 31 @58349 has 1 MA's), (Start: 34 @58358 has 14 MA's), (Start: 36 @58367 has 5 MA's), (56, 58511), (63, 58568),

Gene: Morty\_69 Start: 57318, Stop: 57590, Start Num: 19

Candidate Starts for Morty\_69:

(Start: 19 @57318 has 106 MA's), (Start: 29 @57339 has 35 MA's), (Start: 33 @57348 has 27 MA's), (47, 57411), (51, 57438), (64, 57561),

Gene: Mosaic\_65 Start: 56787, Stop: 57089, Start Num: 16

Candidate Starts for Mosaic\_65:

(14, 56778), (Start: 16 @56787 has 73 MA's), (Start: 33 @56841 has 27 MA's), (Start: 46 @56910 has 29 MA's), (52, 56952),

Gene: Mulan\_67 Start: 57021, Stop: 57323, Start Num: 16

Candidate Starts for Mulan\_67:

(Start: 16 @57021 has 73 MA's), (Start: 33 @57075 has 27 MA's), (Start: 46 @57144 has 29 MA's), (52, 57186),

Gene: Murdoc\_65 Start: 57070, Stop: 57372, Start Num: 16

Candidate Starts for Murdoc\_65:

(Start: 16 @57070 has 73 MA's), (Start: 33 @57124 has 27 MA's), (Start: 46 @57193 has 29 MA's), (52, 57235),

Gene: Mutante\_68 Start: 56801, Stop: 57073, Start Num: 19

Candidate Starts for Mutante\_68:

(Start: 19 @56801 has 106 MA's), (Start: 29 @56822 has 35 MA's), (Start: 33 @56831 has 27 MA's), (47, 56894), (51, 56921), (64, 57044),

Gene: Nacho\_0071 Start: 57839, Stop: 58111, Start Num: 19

Candidate Starts for Nacho\_0071:

(Start: 19 @57839 has 106 MA's), (Start: 29 @57860 has 35 MA's), (Start: 33 @57869 has 27 MA's), (47, 57932), (51, 57959), (64, 58082),

Gene: Neos5\_68 Start: 57688, Stop: 57903, Start Num: 36

Candidate Starts for Neos5\_68:

(9, 57544), (Start: 31 @57670 has 1 MA's), (Start: 34 @57679 has 14 MA's), (Start: 36 @57688 has 5 MA's), (47, 57739), (63, 57865),

Gene: Newman\_66 Start: 57116, Stop: 57388, Start Num: 19

Candidate Starts for Newman\_66:

(Start: 19 @57116 has 106 MA's), (Start: 29 @57137 has 35 MA's), (Start: 33 @57146 has 27 MA's), (47, 57209), (51, 57236), (64, 57359),

Gene: Nicole21\_69 Start: 57080, Stop: 57352, Start Num: 19

Candidate Starts for Nicole21\_69:

(Start: 19 @57080 has 106 MA's), (Start: 29 @57101 has 35 MA's), (Start: 33 @57110 has 27 MA's), (47, 57173), (51, 57200), (64, 57323),

Gene: Nozo\_68 Start: 58013, Stop: 58300, Start Num: 23

Candidate Starts for Nozo\_68:

(2, 57791), (3, 57809), (4, 57821), (6, 57866), (17, 58001), (Start: 23 @58013 has 21 MA's), (26, 58031), (Start: 31 @58043 has 1 MA's), (Start: 34 @58052 has 14 MA's), (Start: 36 @58061 has 5 MA's), (56, 58205), (63, 58262),

Gene: Numberten\_67 Start: 57024, Stop: 57296, Start Num: 19

Candidate Starts for Numberten\_67:

(Start: 19 @57024 has 106 MA's), (Start: 29 @57045 has 35 MA's), (Start: 33 @57054 has 27 MA's), (47, 57117), (51, 57144), (64, 57267),

Gene: Nyala\_67 Start: 56799, Stop: 57071, Start Num: 19

Candidate Starts for Nyala\_67:

(Start: 19 @56799 has 106 MA's), (Start: 29 @56820 has 35 MA's), (Start: 33 @56829 has 27 MA's), (47, 56892), (51, 56919), (64, 57042),

Gene: OSmaximus\_68 Start: 57554, Stop: 57850, Start Num: 16

Candidate Starts for OSmaximus\_68:

(12, 57536), (Start: 16 @57554 has 73 MA's), (Start: 29 @57599 has 35 MA's), (Start: 33 @57608 has 27 MA's), (48, 57674), (64, 57821),

Gene: Obutu\_70 Start: 57908, Stop: 58123, Start Num: 36

Candidate Starts for Obutu\_70:

(9, 57764), (Start: 31 @57890 has 1 MA's), (Start: 34 @57899 has 14 MA's), (Start: 36 @57908 has 5 MA's), (47, 57959), (63, 58085),

Gene: Oline\_67 Start: 56953, Stop: 57255, Start Num: 16

Candidate Starts for Oline\_67:

(Start: 16 @56953 has 73 MA's), (Start: 33 @57007 has 27 MA's), (Start: 46 @57076 has 29 MA's), (52, 57118),

Gene: OliverWalter\_67 Start: 57124, Stop: 57396, Start Num: 19  
Candidate Starts for OliverWalter\_67:  
(Start: 19 @57124 has 106 MA's), (Start: 29 @57145 has 35 MA's), (Start: 33 @57154 has 27 MA's),  
(47, 57217), (51, 57244), (64, 57367),

Gene: Omniscient\_69 Start: 57662, Stop: 57934, Start Num: 19  
Candidate Starts for Omniscient\_69:  
(Start: 19 @57662 has 106 MA's), (Start: 29 @57683 has 35 MA's), (Start: 33 @57692 has 27 MA's),  
(47, 57755), (51, 57782), (64, 57905),

Gene: Oosterbaan\_67 Start: 57081, Stop: 57353, Start Num: 19  
Candidate Starts for Oosterbaan\_67:  
(Start: 19 @57081 has 106 MA's), (Start: 29 @57102 has 35 MA's), (Start: 33 @57111 has 27 MA's),  
(47, 57174), (51, 57201), (64, 57324),

Gene: Opia\_65 Start: 55480, Stop: 55740, Start Num: 29  
Candidate Starts for Opia\_65:  
(Start: 29 @55480 has 35 MA's), (Start: 33 @55489 has 27 MA's), (Start: 42 @55534 has 4 MA's),  
(47, 55561), (51, 55588), (54, 55615), (58, 55657), (61, 55690), (63, 55699), (64, 55711),

Gene: OrangeOswald\_68 Start: 57254, Stop: 57541, Start Num: 23  
Candidate Starts for OrangeOswald\_68:  
(2, 57032), (3, 57050), (4, 57062), (6, 57107), (17, 57242), (Start: 23 @57254 has 21 MA's), (26,  
57272), (Start: 31 @57284 has 1 MA's), (Start: 34 @57293 has 14 MA's), (Start: 36 @57302 has 5  
MA's), (56, 57446), (63, 57503),

Gene: Orwigg\_68 Start: 56723, Stop: 56995, Start Num: 19  
Candidate Starts for Orwigg\_68:  
(Start: 19 @56723 has 106 MA's), (Start: 29 @56744 has 35 MA's), (Start: 33 @56753 has 27 MA's),  
(47, 56816), (51, 56843), (64, 56966),

Gene: PG1\_67 Start: 57314, Stop: 57586, Start Num: 19  
Candidate Starts for PG1\_67:  
(Start: 19 @57314 has 106 MA's), (Start: 29 @57335 has 35 MA's), (Start: 33 @57344 has 27 MA's),  
(47, 57407), (51, 57434), (64, 57557),

Gene: Phaedrus\_63 Start: 56718, Stop: 56966, Start Num: 34  
Candidate Starts for Phaedrus\_63:  
(2, 56457), (3, 56475), (4, 56487), (6, 56532), (17, 56667), (Start: 23 @56679 has 21 MA's), (26,  
56697), (Start: 31 @56709 has 1 MA's), (Start: 34 @56718 has 14 MA's), (Start: 36 @56727 has 5  
MA's), (56, 56871), (63, 56928),

Gene: Phamished\_69 Start: 57004, Stop: 57306, Start Num: 16  
Candidate Starts for Phamished\_69:  
(Start: 16 @57004 has 73 MA's), (Start: 33 @57058 has 27 MA's), (Start: 46 @57127 has 29 MA's),  
(52, 57169),

Gene: Phantasmagoria\_63 Start: 55526, Stop: 55732, Start Num: 42  
Candidate Starts for Phantasmagoria\_63:  
(Start: 29 @55472 has 35 MA's), (Start: 33 @55481 has 27 MA's), (Start: 42 @55526 has 4 MA's),  
(47, 55553), (51, 55580), (54, 55607), (58, 55649), (61, 55682), (63, 55691), (64, 55703),

Gene: Phareon\_66 Start: 56635, Stop: 56814, Start Num: 46  
Candidate Starts for Phareon\_66:  
(Start: 16 @56512 has 73 MA's), (Start: 33 @56566 has 27 MA's), (Start: 46 @56635 has 29 MA's),  
(52, 56677),

Gene: PhatCats2014\_68 Start: 57319, Stop: 57591, Start Num: 19  
Candidate Starts for PhatCats2014\_68:  
(Start: 19 @57319 has 106 MA's), (Start: 29 @57340 has 35 MA's), (Start: 33 @57349 has 27 MA's),  
(47, 57412), (51, 57439), (64, 57562),

Gene: PhatLouie\_70 Start: 57338, Stop: 57610, Start Num: 19  
Candidate Starts for PhatLouie\_70:  
(Start: 19 @57338 has 106 MA's), (Start: 29 @57359 has 35 MA's), (Start: 33 @57368 has 27 MA's),  
(47, 57431), (51, 57458), (64, 57581),

Gene: Phayeta\_71 Start: 57812, Stop: 58027, Start Num: 36  
Candidate Starts for Phayeta\_71:  
(9, 57668), (Start: 31 @57794 has 1 MA's), (Start: 34 @57803 has 14 MA's), (Start: 36 @57812 has 5  
MA's), (47, 57863), (63, 57989),

Gene: Phelemich\_64 Start: 58168, Stop: 58425, Start Num: 28  
Candidate Starts for Phelemich\_64:  
(Start: 22 @58141 has 4 MA's), (Start: 28 @58168 has 3 MA's), (Start: 33 @58177 has 27 MA's),  
(Start: 46 @58237 has 29 MA's), (48, 58243), (52, 58279), (56, 58321), (62, 58375),

Gene: PhenghisKhan\_68 Start: 56960, Stop: 57262, Start Num: 16  
Candidate Starts for PhenghisKhan\_68:  
(Start: 16 @56960 has 73 MA's), (Start: 33 @57014 has 27 MA's), (Start: 46 @57083 has 29 MA's),  
(52, 57125),

Gene: Pherdinand\_68 Start: 57073, Stop: 57375, Start Num: 16  
Candidate Starts for Pherdinand\_68:  
(Start: 16 @57073 has 73 MA's), (Start: 33 @57127 has 27 MA's), (Start: 46 @57196 has 29 MA's),  
(52, 57238),

Gene: Phergie\_68 Start: 56952, Stop: 57254, Start Num: 16  
Candidate Starts for Phergie\_68:  
(Start: 16 @56952 has 73 MA's), (Start: 33 @57006 has 27 MA's), (Start: 46 @57075 has 29 MA's),  
(52, 57117),

Gene: Philly\_67 Start: 57066, Stop: 57353, Start Num: 23  
Candidate Starts for Philly\_67:  
(2, 56844), (3, 56862), (4, 56874), (6, 56919), (17, 57054), (Start: 23 @57066 has 21 MA's), (26,  
57084), (Start: 31 @57096 has 1 MA's), (Start: 34 @57105 has 14 MA's), (Start: 36 @57114 has 5  
MA's), (56, 57258), (63, 57315),

Gene: Phipps\_67 Start: 56871, Stop: 57173, Start Num: 16  
Candidate Starts for Phipps\_67:  
(Start: 16 @56871 has 73 MA's), (Start: 33 @56925 has 27 MA's), (Start: 46 @56994 has 29 MA's),  
(52, 57036),

Gene: Phleuron\_66 Start: 56758, Stop: 57060, Start Num: 16  
Candidate Starts for Phleuron\_66:



(Start: 16 @56758 has 73 MA's), (Start: 33 @56812 has 27 MA's), (Start: 46 @56881 has 29 MA's), (52, 56923),

Gene: Phlyer\_68 Start: 57962, Stop: 58249, Start Num: 23

Candidate Starts for Phlyer\_68:

(2, 57740), (3, 57758), (4, 57770), (6, 57815), (17, 57950), (Start: 23 @57962 has 21 MA's), (26, 57980), (Start: 31 @57992 has 1 MA's), (Start: 34 @58001 has 14 MA's), (Start: 36 @58010 has 5 MA's), (56, 58154), (63, 58211),

Gene: PhrankReynolds\_67 Start: 56957, Stop: 57259, Start Num: 16

Candidate Starts for PhrankReynolds\_67:

(Start: 16 @56957 has 73 MA's), (Start: 33 @57011 has 27 MA's), (Start: 46 @57080 has 29 MA's), (52, 57122),

Gene: PhrodoBaggins\_69 Start: 57177, Stop: 57479, Start Num: 16

Candidate Starts for PhrodoBaggins\_69:

(Start: 16 @57177 has 73 MA's), (Start: 33 @57231 has 27 MA's), (Start: 46 @57300 has 29 MA's), (52, 57342),

Gene: Phunky\_66 Start: 56822, Stop: 57094, Start Num: 19

Candidate Starts for Phunky\_66:

(Start: 19 @56822 has 106 MA's), (Start: 29 @56843 has 35 MA's), (Start: 33 @56852 has 27 MA's), (47, 56915), (51, 56942), (64, 57065),

Gene: Piglet\_0068 Start: 57291, Stop: 57563, Start Num: 19

Candidate Starts for Piglet\_0068:

(Start: 19 @57291 has 106 MA's), (Start: 29 @57312 has 35 MA's), (Start: 33 @57321 has 27 MA's), (47, 57384), (51, 57411), (64, 57534),

Gene: PinheadLarry\_67 Start: 57119, Stop: 57421, Start Num: 16

Candidate Starts for PinheadLarry\_67:

(Start: 16 @57119 has 73 MA's), (Start: 33 @57173 has 27 MA's), (Start: 46 @57242 has 29 MA's), (52, 57284),

Gene: Pinkman\_67 Start: 56895, Stop: 57197, Start Num: 16

Candidate Starts for Pinkman\_67:

(Start: 16 @56895 has 73 MA's), (Start: 33 @56949 has 27 MA's), (Start: 46 @57018 has 29 MA's), (52, 57060),

Gene: Pipefish\_71 Start: 58442, Stop: 58660, Start Num: 34

Candidate Starts for Pipefish\_71:

(8, 58295), (15, 58382), (20, 58400), (Start: 34 @58442 has 14 MA's), (Start: 36 @58451 has 5 MA's), (44, 58487), (53, 58529), (56, 58565), (63, 58622),

Gene: Pipsqueak\_65 Start: 56798, Stop: 57100, Start Num: 16

Candidate Starts for Pipsqueak\_65:

(Start: 16 @56798 has 73 MA's), (Start: 33 @56852 has 27 MA's), (Start: 46 @56921 has 29 MA's), (52, 56963),

Gene: Placalicious\_68 Start: 57839, Stop: 58141, Start Num: 16

Candidate Starts for Placalicious\_68:

(Start: 16 @57839 has 73 MA's), (Start: 33 @57893 has 27 MA's), (Start: 46 @57962 has 29 MA's), (52, 58004),

Gene: Plmatters\_66 Start: 56864, Stop: 57112, Start Num: 33

Candidate Starts for Plmatters\_66:

(Start: 16 @56810 has 73 MA's), (Start: 33 @56864 has 27 MA's), (Start: 46 @56933 has 29 MA's), (52, 56975),

Gene: Podrick\_67 Start: 56879, Stop: 57181, Start Num: 16

Candidate Starts for Podrick\_67:

(Start: 16 @56879 has 73 MA's), (Start: 33 @56933 has 27 MA's), (Start: 46 @57002 has 29 MA's), (52, 57044),

Gene: Pops\_66 Start: 56842, Stop: 57093, Start Num: 29

Candidate Starts for Pops\_66:

(Start: 29 @56842 has 35 MA's), (Start: 33 @56851 has 27 MA's), (47, 56914), (51, 56941), (64, 57064),

Gene: Potter\_65 Start: 56927, Stop: 57106, Start Num: 46

Candidate Starts for Potter\_65:

(Start: 16 @56804 has 73 MA's), (Start: 33 @56858 has 27 MA's), (Start: 46 @56927 has 29 MA's), (52, 56969),

Gene: Prickles\_69 Start: 57305, Stop: 57607, Start Num: 16

Candidate Starts for Prickles\_69:

(Start: 16 @57305 has 73 MA's), (Start: 33 @57359 has 27 MA's), (Start: 46 @57428 has 29 MA's), (52, 57470),

Gene: ProfessorX\_66 Start: 56815, Stop: 57087, Start Num: 19

Candidate Starts for ProfessorX\_66:

(Start: 19 @56815 has 106 MA's), (Start: 29 @56836 has 35 MA's), (Start: 33 @56845 has 27 MA's), (47, 56908), (51, 56935), (64, 57058),

Gene: Puhltonio\_66 Start: 57079, Stop: 57381, Start Num: 16

Candidate Starts for Puhltonio\_66:

(Start: 16 @57079 has 73 MA's), (Start: 33 @57133 has 27 MA's), (Start: 46 @57202 has 29 MA's), (52, 57244),

Gene: QueenBeane\_68 Start: 57139, Stop: 57390, Start Num: 29

Candidate Starts for QueenBeane\_68:

(Start: 19 @57118 has 106 MA's), (Start: 29 @57139 has 35 MA's), (Start: 33 @57148 has 27 MA's), (47, 57211), (51, 57238), (64, 57361),

Gene: Quisquilliae\_69 Start: 57079, Stop: 57351, Start Num: 19

Candidate Starts for Quisquilliae\_69:

(Start: 19 @57079 has 106 MA's), (Start: 29 @57100 has 35 MA's), (Start: 33 @57109 has 27 MA's), (47, 57172), (51, 57199), (64, 57322),

Gene: Qyrzula\_58 Start: 55591, Stop: 55851, Start Num: 29

Candidate Starts for Qyrzula\_58:

(Start: 29 @55591 has 35 MA's), (Start: 33 @55600 has 27 MA's), (Start: 42 @55645 has 4 MA's), (47, 55672), (51, 55699), (54, 55726), (58, 55768), (61, 55801), (63, 55810), (64, 55822),

Gene: RagingRooster\_67 Start: 56894, Stop: 57181, Start Num: 23

Candidate Starts for RagingRooster\_67:

(2, 56672), (3, 56690), (4, 56702), (6, 56747), (17, 56882), (Start: 23 @56894 has 21 MA's), (26, 56912), (Start: 31 @56924 has 1 MA's), (Start: 34 @56933 has 14 MA's), (Start: 36 @56942 has 5 MA's), (56, 57086), (63, 57143),

Gene: Reprobate\_65 Start: 58173, Stop: 58430, Start Num: 28

Candidate Starts for Reprobate\_65:

(Start: 22 @58146 has 4 MA's), (Start: 28 @58173 has 3 MA's), (Start: 33 @58182 has 27 MA's), (Start: 46 @58242 has 29 MA's), (48, 58248), (52, 58284), (56, 58326), (62, 58380),

Gene: Rhinoforte\_64 Start: 55513, Stop: 55773, Start Num: 29

Candidate Starts for Rhinoforte\_64:

(Start: 29 @55513 has 35 MA's), (Start: 33 @55522 has 27 MA's), (Start: 42 @55567 has 4 MA's), (47, 55594), (51, 55621), (54, 55648), (58, 55690), (61, 55723), (63, 55732), (64, 55744),

Gene: Rich\_66 Start: 59397, Stop: 59645, Start Num: 33

Candidate Starts for Rich\_66:

(Start: 22 @59361 has 4 MA's), (Start: 28 @59388 has 3 MA's), (Start: 33 @59397 has 27 MA's), (48, 59463), (55, 59526), (56, 59541), (62, 59595), (66, 59631), (68, 59640),

Gene: Riggan\_69 Start: 57111, Stop: 57383, Start Num: 19

Candidate Starts for Riggan\_69:

(Start: 19 @57111 has 106 MA's), (Start: 29 @57132 has 35 MA's), (Start: 33 @57141 has 27 MA's), (47, 57204), (51, 57231), (64, 57354),

Gene: Rimu\_71 Start: 57279, Stop: 57551, Start Num: 19

Candidate Starts for Rimu\_71:

(Start: 19 @57279 has 106 MA's), (Start: 29 @57300 has 35 MA's), (Start: 33 @57309 has 27 MA's), (51, 57399), (64, 57522),

Gene: Rita1961\_69 Start: 57612, Stop: 57899, Start Num: 23

Candidate Starts for Rita1961\_69:

(2, 57390), (3, 57408), (4, 57420), (6, 57465), (17, 57600), (Start: 23 @57612 has 21 MA's), (26, 57630), (Start: 31 @57642 has 1 MA's), (Start: 34 @57651 has 14 MA's), (Start: 36 @57660 has 5 MA's), (56, 57804), (63, 57861),

Gene: Robyn\_68 Start: 57384, Stop: 57656, Start Num: 19

Candidate Starts for Robyn\_68:

(Start: 19 @57384 has 106 MA's), (Start: 29 @57405 has 35 MA's), (Start: 33 @57414 has 27 MA's), (47, 57477), (51, 57504), (64, 57627),

Gene: Roliet\_65 Start: 56199, Stop: 56447, Start Num: 33

Candidate Starts for Roliet\_65:

(Start: 16 @56145 has 73 MA's), (Start: 33 @56199 has 27 MA's), (Start: 46 @56268 has 29 MA's), (52, 56310),

Gene: RomaT\_68 Start: 57813, Stop: 58100, Start Num: 23

Candidate Starts for RomaT\_68:

(2, 57591), (3, 57609), (4, 57621), (6, 57666), (17, 57801), (Start: 23 @57813 has 21 MA's), (26, 57831), (Start: 31 @57843 has 1 MA's), (Start: 34 @57852 has 14 MA's), (Start: 36 @57861 has 5 MA's), (56, 58005), (63, 58062),

Gene: Roscoe\_68 Start: 57258, Stop: 57530, Start Num: 19

Candidate Starts for Roscoe\_68:

(Start: 19 @57258 has 106 MA's), (Start: 29 @57279 has 35 MA's), (Start: 33 @57288 has 27 MA's), (51, 57378), (64, 57501),

Gene: Rosebush\_63 Start: 55576, Stop: 55836, Start Num: 29

Candidate Starts for Rosebush\_63:

(Start: 29 @55576 has 35 MA's), (Start: 33 @55585 has 27 MA's), (Start: 42 @55630 has 4 MA's), (47, 55657), (51, 55684), (54, 55711), (58, 55753), (61, 55786), (63, 55795), (64, 55807),

Gene: Roy17\_66 Start: 56511, Stop: 56783, Start Num: 19

Candidate Starts for Roy17\_66:

(Start: 19 @56511 has 106 MA's), (Start: 29 @56532 has 35 MA's), (Start: 33 @56541 has 27 MA's), (47, 56604), (51, 56631), (64, 56754),

Gene: SDcharge11\_67 Start: 56317, Stop: 56619, Start Num: 16

Candidate Starts for SDcharge11\_67:

(Start: 16 @56317 has 73 MA's), (Start: 33 @56371 has 27 MA's), (Start: 46 @56440 has 29 MA's), (52, 56482),

Gene: Sabella\_64 Start: 55412, Stop: 55672, Start Num: 29

Candidate Starts for Sabella\_64:

(Start: 29 @55412 has 35 MA's), (Start: 33 @55421 has 27 MA's), (Start: 42 @55466 has 4 MA's), (47, 55493), (51, 55520), (54, 55547), (58, 55589), (61, 55622), (63, 55631), (64, 55643),

Gene: Saguaro\_64 Start: 57561, Stop: 57827, Start Num: 28

Candidate Starts for Saguaro\_64:

(24, 57552), (Start: 28 @57561 has 3 MA's), (47, 57630), (48, 57633), (49, 57639), (50, 57645), (57, 57720),

Gene: Samaymay\_68 Start: 57118, Stop: 57390, Start Num: 19

Candidate Starts for Samaymay\_68:

(Start: 19 @57118 has 106 MA's), (Start: 29 @57139 has 35 MA's), (Start: 33 @57148 has 27 MA's), (47, 57211), (51, 57238), (64, 57361),

Gene: SassyCat97\_66 Start: 56794, Stop: 57096, Start Num: 16

Candidate Starts for SassyCat97\_66:

(Start: 16 @56794 has 73 MA's), (Start: 33 @56848 has 27 MA's), (Start: 46 @56917 has 29 MA's), (52, 56959),

Gene: Schadenfreude\_68 Start: 56686, Stop: 56958, Start Num: 19

Candidate Starts for Schadenfreude\_68:

(Start: 19 @56686 has 106 MA's), (Start: 29 @56707 has 35 MA's), (Start: 33 @56716 has 27 MA's), (47, 56779), (51, 56806), (64, 56929),

Gene: Scoot17C\_68 Start: 56745, Stop: 57017, Start Num: 19

Candidate Starts for Scoot17C\_68:

(Start: 19 @56745 has 106 MA's), (Start: 29 @56766 has 35 MA's), (Start: 33 @56775 has 27 MA's), (47, 56838), (51, 56865), (64, 56988),

Gene: Scrick\_67 Start: 56929, Stop: 57108, Start Num: 46

Candidate Starts for Scrick\_67:

(Start: 16 @56806 has 73 MA's), (Start: 33 @56860 has 27 MA's), (Start: 46 @56929 has 29 MA's), (52, 56971),

Gene: Serendipitous\_65 Start: 57769, Stop: 58026, Start Num: 33  
Candidate Starts for Serendipitous\_65:  
(11, 57688), (30, 57763), (Start: 33 @57769 has 27 MA's), (54, 57895), (56, 57922), (62, 57976),

Gene: Serendipity\_67 Start: 57100, Stop: 57372, Start Num: 19  
Candidate Starts for Serendipity\_67:  
(Start: 19 @57100 has 106 MA's), (Start: 29 @57121 has 35 MA's), (Start: 33 @57130 has 27 MA's),  
(47, 57193), (51, 57220), (64, 57343),

Gene: Serpentine\_0068 Start: 57183, Stop: 57455, Start Num: 19  
Candidate Starts for Serpentine\_0068:  
(Start: 19 @57183 has 106 MA's), (Start: 29 @57204 has 35 MA's), (Start: 33 @57213 has 27 MA's),  
(47, 57276), (51, 57303), (64, 57426),

Gene: Sheila\_64 Start: 56299, Stop: 56478, Start Num: 46  
Candidate Starts for Sheila\_64:  
(Start: 16 @56176 has 73 MA's), (Start: 33 @56230 has 27 MA's), (Start: 46 @56299 has 29 MA's),  
(52, 56341),

Gene: ShiVal\_66 Start: 56826, Stop: 57098, Start Num: 19  
Candidate Starts for ShiVal\_66:  
(Start: 19 @56826 has 106 MA's), (Start: 29 @56847 has 35 MA's), (Start: 33 @56856 has 27 MA's),  
(47, 56919), (51, 56946), (64, 57069),

Gene: Sigman\_68 Start: 56782, Stop: 57054, Start Num: 19  
Candidate Starts for Sigman\_68:  
(Start: 19 @56782 has 106 MA's), (Start: 29 @56803 has 35 MA's), (Start: 33 @56812 has 27 MA's),  
(47, 56875), (51, 56902), (64, 57025),

Gene: Simielle\_68 Start: 56783, Stop: 57055, Start Num: 19  
Candidate Starts for Simielle\_68:  
(Start: 19 @56783 has 106 MA's), (Start: 29 @56804 has 35 MA's), (Start: 33 @56813 has 27 MA's),  
(47, 56876), (51, 56903), (64, 57026),

Gene: SirJeffery\_66 Start: 58371, Stop: 58619, Start Num: 33  
Candidate Starts for SirJeffery\_66:  
(Start: 22 @58335 has 4 MA's), (Start: 28 @58362 has 3 MA's), (Start: 33 @58371 has 27 MA's), (48,  
58437), (56, 58515), (62, 58569), (64, 58584), (66, 58605),

Gene: Skippy\_69 Start: 57036, Stop: 57308, Start Num: 19  
Candidate Starts for Skippy\_69:  
(Start: 19 @57036 has 106 MA's), (Start: 29 @57057 has 35 MA's), (Start: 33 @57066 has 27 MA's),  
(47, 57129), (51, 57156), (64, 57279),

Gene: Slatt\_68 Start: 57090, Stop: 57392, Start Num: 16  
Candidate Starts for Slatt\_68:  
(Start: 16 @57090 has 73 MA's), (Start: 33 @57144 has 27 MA's), (Start: 46 @57213 has 29 MA's),  
(52, 57255),

Gene: SlippinJimmy\_71 Start: 58709, Stop: 58924, Start Num: 36  
Candidate Starts for SlippinJimmy\_71:  
(9, 58565), (Start: 31 @58691 has 1 MA's), (Start: 34 @58700 has 14 MA's), (Start: 36 @58709 has 5  
MA's), (47, 58760), (63, 58886),

Gene: Soile\_69 Start: 57332, Stop: 57604, Start Num: 19

Candidate Starts for Soile\_69:

(Start: 19 @57332 has 106 MA's), (Start: 29 @57353 has 35 MA's), (Start: 33 @57362 has 27 MA's), (51, 57452), (64, 57575),

Gene: Solosis\_66 Start: 56843, Stop: 57091, Start Num: 33

Candidate Starts for Solosis\_66:

(Start: 16 @56789 has 73 MA's), (Start: 33 @56843 has 27 MA's), (Start: 46 @56912 has 29 MA's), (52, 56954),

Gene: Sophia\_66 Start: 56836, Stop: 57084, Start Num: 33

Candidate Starts for Sophia\_66:

(Start: 16 @56782 has 73 MA's), (Start: 33 @56836 has 27 MA's), (Start: 46 @56905 has 29 MA's), (52, 56947),

Gene: Soto\_65 Start: 56349, Stop: 56651, Start Num: 16

Candidate Starts for Soto\_65:

(Start: 16 @56349 has 73 MA's), (Start: 33 @56403 has 27 MA's), (Start: 46 @56472 has 29 MA's), (52, 56514),

Gene: Spartan300\_67 Start: 57023, Stop: 57295, Start Num: 19

Candidate Starts for Spartan300\_67:

(Start: 19 @57023 has 106 MA's), (Start: 29 @57044 has 35 MA's), (Start: 33 @57053 has 27 MA's), (47, 57116), (51, 57143), (64, 57266),

Gene: Squid\_67 Start: 57082, Stop: 57384, Start Num: 16

Candidate Starts for Squid\_67:

(Start: 16 @57082 has 73 MA's), (Start: 33 @57136 has 27 MA's), (Start: 46 @57205 has 29 MA's), (52, 57247),

Gene: Squiggle\_67 Start: 56801, Stop: 57103, Start Num: 16

Candidate Starts for Squiggle\_67:

(Start: 16 @56801 has 73 MA's), (Start: 33 @56855 has 27 MA's), (Start: 46 @56924 has 29 MA's), (52, 56966),

Gene: Struggle\_68 Start: 56927, Stop: 57169, Start Num: 33

Candidate Starts for Struggle\_68:

(Start: 29 @56918 has 35 MA's), (Start: 33 @56927 has 27 MA's), (47, 56990), (51, 57017), (64, 57140),

Gene: Suffolk\_66 Start: 56596, Stop: 56868, Start Num: 19

Candidate Starts for Suffolk\_66:

(Start: 19 @56596 has 106 MA's), (Start: 29 @56617 has 35 MA's), (Start: 33 @56626 has 27 MA's), (47, 56689), (51, 56716), (64, 56839),

Gene: Suigeneris\_68 Start: 58477, Stop: 58761, Start Num: 22

Candidate Starts for Suigeneris\_68:

(Start: 22 @58477 has 4 MA's), (Start: 28 @58504 has 3 MA's), (Start: 33 @58513 has 27 MA's), (48, 58579), (56, 58657), (62, 58711), (64, 58726), (66, 58747),

Gene: Surely\_68 Start: 57426, Stop: 57674, Start Num: 33

Candidate Starts for Surely\_68:

(Start: 16 @57372 has 73 MA's), (Start: 33 @57426 has 27 MA's), (Start: 46 @57495 has 29 MA's), (52, 57537),

Gene: Swiphy\_72 Start: 57338, Stop: 57610, Start Num: 19

Candidate Starts for Swiphy\_72:

(Start: 19 @57338 has 106 MA's), (Start: 29 @57359 has 35 MA's), (Start: 33 @57368 has 27 MA's), (47, 57431), (51, 57458), (64, 57581),

Gene: Swish\_68 Start: 57058, Stop: 57360, Start Num: 16

Candidate Starts for Swish\_68:

(Start: 16 @57058 has 73 MA's), (Start: 33 @57112 has 27 MA's), (Start: 46 @57181 has 29 MA's), (52, 57223),

Gene: SynergyX\_68 Start: 57251, Stop: 57538, Start Num: 23

Candidate Starts for SynergyX\_68:

(2, 57029), (3, 57047), (4, 57059), (6, 57104), (17, 57239), (Start: 23 @57251 has 21 MA's), (26, 57269), (Start: 31 @57281 has 1 MA's), (Start: 34 @57290 has 14 MA's), (Start: 36 @57299 has 5 MA's), (56, 57443), (63, 57500),

Gene: TA17A\_64 Start: 55472, Stop: 55678, Start Num: 42

Candidate Starts for TA17A\_64:

(Start: 29 @55418 has 35 MA's), (Start: 33 @55427 has 27 MA's), (Start: 42 @55472 has 4 MA's), (47, 55499), (51, 55526), (54, 55553), (58, 55595), (61, 55628), (63, 55637), (64, 55649),

Gene: TallGrassMM\_66 Start: 56698, Stop: 57000, Start Num: 16

Candidate Starts for TallGrassMM\_66:

(Start: 16 @56698 has 73 MA's), (Start: 33 @56752 has 27 MA's), (Start: 46 @56821 has 29 MA's), (52, 56863),

Gene: Telesworld\_66 Start: 56912, Stop: 57184, Start Num: 19

Candidate Starts for Telesworld\_66:

(Start: 19 @56912 has 106 MA's), (Start: 29 @56933 has 35 MA's), (Start: 33 @56942 has 27 MA's), (47, 57005), (51, 57032), (64, 57155),

Gene: Thonko\_67 Start: 56230, Stop: 56466, Start Num: 37

Candidate Starts for Thonko\_67:

(1, 55804), (5, 55999), (7, 56032), (18, 56158), (25, 56191), (Start: 28 @56197 has 3 MA's), (Start: 37 @56230 has 1 MA's), (43, 56260), (53, 56326), (55, 56347), (56, 56362),

Gene: Thora\_66 Start: 57138, Stop: 57440, Start Num: 16

Candidate Starts for Thora\_66:

(Start: 16 @57138 has 73 MA's), (Start: 33 @57192 has 27 MA's), (Start: 46 @57261 has 29 MA's), (52, 57303),

Gene: ThreeOh3D2\_69 Start: 57310, Stop: 57582, Start Num: 19

Candidate Starts for ThreeOh3D2\_69:

(Start: 19 @57310 has 106 MA's), (Start: 29 @57331 has 35 MA's), (Start: 33 @57340 has 27 MA's), (47, 57403), (51, 57430), (64, 57553),

Gene: Timmi\_67 Start: 56794, Stop: 57066, Start Num: 19

Candidate Starts for Timmi\_67:

(Start: 19 @56794 has 106 MA's), (Start: 29 @56815 has 35 MA's), (Start: 33 @56824 has 27 MA's), (47, 56887), (51, 56914), (64, 57037),

Gene: Tinciduntolum\_65 Start: 55579, Stop: 55839, Start Num: 29

Candidate Starts for Tinciduntolum\_65:

(Start: 29 @55579 has 35 MA's), (Start: 33 @55588 has 27 MA's), (Start: 42 @55633 has 4 MA's), (51, 55687), (54, 55714), (58, 55756), (61, 55789), (63, 55798), (64, 55810),

Gene: TomBombadil\_68 Start: 57410, Stop: 57658, Start Num: 33

Candidate Starts for TomBombadil\_68:

(Start: 16 @57356 has 73 MA's), (Start: 33 @57410 has 27 MA's), (Start: 46 @57479 has 29 MA's), (52, 57521),

Gene: Tomlarah\_69 Start: 57647, Stop: 57919, Start Num: 19

Candidate Starts for Tomlarah\_69:

(Start: 19 @57647 has 106 MA's), (Start: 29 @57668 has 35 MA's), (Start: 33 @57677 has 27 MA's), (47, 57740), (51, 57767), (64, 57890),

Gene: Toni\_68 Start: 57239, Stop: 57511, Start Num: 19

Candidate Starts for Toni\_68:

(Start: 19 @57239 has 106 MA's), (Start: 29 @57260 has 35 MA's), (Start: 33 @57269 has 27 MA's), (47, 57332), (51, 57359), (64, 57482),

Gene: Tooj\_66 Start: 56464, Stop: 56736, Start Num: 19

Candidate Starts for Tooj\_66:

(Start: 19 @56464 has 106 MA's), (Start: 29 @56485 has 35 MA's), (Start: 33 @56494 has 27 MA's), (47, 56557), (51, 56584), (64, 56707),

Gene: Tres\_64 Start: 55433, Stop: 55693, Start Num: 29

Candidate Starts for Tres\_64:

(Start: 29 @55433 has 35 MA's), (Start: 33 @55442 has 27 MA's), (Start: 42 @55487 has 4 MA's), (47, 55514), (51, 55541), (54, 55568), (58, 55610), (61, 55643), (63, 55652), (64, 55664),

Gene: True\_66 Start: 56803, Stop: 57075, Start Num: 19

Candidate Starts for True\_66:

(Start: 19 @56803 has 106 MA's), (Start: 29 @56824 has 35 MA's), (Start: 33 @56833 has 27 MA's), (47, 56896), (51, 56923), (64, 57046),

Gene: Trypo\_69 Start: 57523, Stop: 57825, Start Num: 16

Candidate Starts for Trypo\_69:

(Start: 16 @57523 has 73 MA's), (Start: 33 @57577 has 27 MA's), (Start: 46 @57646 has 29 MA's), (52, 57688),

Gene: Tydolla\_65 Start: 57176, Stop: 57418, Start Num: 27

Candidate Starts for Tydolla\_65:

(10, 57080), (13, 57134), (Start: 27 @57176 has 2 MA's), (Start: 34 @57188 has 14 MA's), (53, 57290), (56, 57326), (63, 57383),

Gene: TyrionL\_68 Start: 56891, Stop: 57193, Start Num: 16

Candidate Starts for TyrionL\_68:

(Start: 16 @56891 has 73 MA's), (Start: 33 @56945 has 27 MA's), (Start: 46 @57014 has 29 MA's), (52, 57056),

Gene: UncleHowie\_65 Start: 56493, Stop: 56795, Start Num: 16

Candidate Starts for UncleHowie\_65:



(Start: 16 @56493 has 73 MA's), (Start: 33 @56547 has 27 MA's), (Start: 46 @56616 has 29 MA's), (52, 56658),

Gene: Usavi\_69 Start: 57492, Stop: 57734, Start Num: 33

Candidate Starts for Usavi\_69:

(Start: 19 @57462 has 106 MA's), (Start: 29 @57483 has 35 MA's), (Start: 33 @57492 has 27 MA's), (47, 57555), (51, 57582), (64, 57705),

Gene: Vaishali24\_68 Start: 57154, Stop: 57405, Start Num: 29

Candidate Starts for Vaishali24\_68:

(Start: 19 @57133 has 106 MA's), (Start: 29 @57154 has 35 MA's), (Start: 33 @57163 has 27 MA's), (47, 57226), (51, 57253), (55, 57292), (64, 57376),

Gene: Valjean\_67 Start: 57033, Stop: 57305, Start Num: 19

Candidate Starts for Valjean\_67:

(Start: 19 @57033 has 106 MA's), (Start: 29 @57054 has 35 MA's), (Start: 33 @57063 has 27 MA's), (47, 57126), (51, 57153), (64, 57276),

Gene: Vaticameos\_65 Start: 55337, Stop: 55609, Start Num: 19

Candidate Starts for Vaticameos\_65:

(Start: 19 @55337 has 106 MA's), (Start: 29 @55358 has 35 MA's), (Start: 33 @55367 has 27 MA's), (47, 55430), (51, 55457), (64, 55580),

Gene: Veritas\_67 Start: 57024, Stop: 57272, Start Num: 33

Candidate Starts for Veritas\_67:

(Start: 16 @56970 has 73 MA's), (Start: 33 @57024 has 27 MA's), (Start: 46 @57093 has 29 MA's), (52, 57135),

Gene: Virapocalypse\_69 Start: 57132, Stop: 57404, Start Num: 19

Candidate Starts for Virapocalypse\_69:

(Start: 19 @57132 has 106 MA's), (Start: 29 @57153 has 35 MA's), (Start: 33 @57162 has 27 MA's), (47, 57225), (51, 57252), (64, 57375),

Gene: Vista\_66 Start: 56794, Stop: 57096, Start Num: 16

Candidate Starts for Vista\_66:

(Start: 16 @56794 has 73 MA's), (Start: 33 @56848 has 27 MA's), (Start: 46 @56917 has 29 MA's), (52, 56959),

Gene: Vivaldi\_68 Start: 57255, Stop: 57557, Start Num: 16

Candidate Starts for Vivaldi\_68:

(Start: 16 @57255 has 73 MA's), (Start: 33 @57309 has 27 MA's), (Start: 46 @57378 has 29 MA's), (52, 57420),

Gene: Vortex\_67 Start: 57078, Stop: 57380, Start Num: 16

Candidate Starts for Vortex\_67:

(Start: 16 @57078 has 73 MA's), (Start: 33 @57132 has 27 MA's), (Start: 46 @57201 has 29 MA's), (52, 57243),

Gene: Wallhey\_68 Start: 56955, Stop: 57203, Start Num: 33

Candidate Starts for Wallhey\_68:

(Start: 16 @56901 has 73 MA's), (Start: 33 @56955 has 27 MA's), (Start: 46 @57024 has 29 MA's), (52, 57066),

Gene: Waterdiva\_68 Start: 57166, Stop: 57438, Start Num: 19  
Candidate Starts for Waterdiva\_68:  
(Start: 19 @57166 has 106 MA's), (Start: 29 @57187 has 35 MA's), (Start: 33 @57196 has 27 MA's),  
(47, 57259), (51, 57286), (64, 57409),

Gene: Weher20\_65 Start: 57467, Stop: 57715, Start Num: 33  
Candidate Starts for Weher20\_65:  
(14, 57404), (Start: 33 @57467 has 27 MA's), (Start: 46 @57536 has 29 MA's), (52, 57578),

Gene: West99\_64 Start: 55606, Stop: 55866, Start Num: 29  
Candidate Starts for West99\_64:  
(Start: 29 @55606 has 35 MA's), (Start: 33 @55615 has 27 MA's), (Start: 42 @55660 has 4 MA's),  
(47, 55687), (51, 55714), (54, 55741), (58, 55783), (61, 55816), (63, 55825), (64, 55837),

Gene: Windsor\_68 Start: 57353, Stop: 57625, Start Num: 19  
Candidate Starts for Windsor\_68:  
(Start: 19 @57353 has 106 MA's), (Start: 29 @57374 has 35 MA's), (Start: 33 @57383 has 27 MA's),  
(47, 57446), (51, 57473), (64, 57596),

Gene: Xavier\_67 Start: 56794, Stop: 57066, Start Num: 19  
Candidate Starts for Xavier\_67:  
(Start: 19 @56794 has 106 MA's), (Start: 29 @56815 has 35 MA's), (Start: 33 @56824 has 27 MA's),  
(47, 56887), (51, 56914), (64, 57037),

Gene: Yahalom\_66 Start: 57095, Stop: 57343, Start Num: 34  
Candidate Starts for Yahalom\_66:  
(2, 56834), (3, 56852), (4, 56864), (6, 56909), (17, 57044), (Start: 23 @57056 has 21 MA's), (26,  
57074), (Start: 31 @57086 has 1 MA's), (Start: 34 @57095 has 14 MA's), (Start: 36 @57104 has 5  
MA's), (56, 57248), (63, 57305),

Gene: Yinz\_68 Start: 57121, Stop: 57408, Start Num: 23  
Candidate Starts for Yinz\_68:  
(2, 56899), (3, 56917), (4, 56929), (6, 56974), (17, 57109), (Start: 23 @57121 has 21 MA's), (26,  
57139), (Start: 31 @57151 has 1 MA's), (Start: 34 @57160 has 14 MA's), (Start: 36 @57169 has 5  
MA's), (56, 57313), (63, 57370),

Gene: Yoshand\_68 Start: 57071, Stop: 57373, Start Num: 16  
Candidate Starts for Yoshand\_68:  
(Start: 16 @57071 has 73 MA's), (Start: 33 @57125 has 27 MA's), (Start: 46 @57194 has 29 MA's),  
(52, 57236),

Gene: YouGoGlencoco\_68 Start: 57137, Stop: 57385, Start Num: 33  
Candidate Starts for YouGoGlencoco\_68:  
(Start: 16 @57083 has 73 MA's), (Start: 33 @57137 has 27 MA's), (Start: 46 @57206 has 29 MA's),  
(52, 57248),

Gene: Zaider\_69 Start: 57303, Stop: 57545, Start Num: 33  
Candidate Starts for Zaider\_69:  
(Start: 19 @57273 has 106 MA's), (Start: 29 @57294 has 35 MA's), (Start: 33 @57303 has 27 MA's),  
(47, 57366), (51, 57393), (64, 57516),

Gene: Zelda\_68 Start: 57477, Stop: 57725, Start Num: 33  
Candidate Starts for Zelda\_68:

(Start: 16 @57423 has 73 MA's), (Start: 33 @57477 has 27 MA's), (Start: 46 @57546 has 29 MA's),  
(52, 57588),

Gene: Zonia\_68 Start: 57352, Stop: 57654, Start Num: 16

Candidate Starts for Zonia\_68:

(Start: 16 @57352 has 73 MA's), (Start: 33 @57406 has 27 MA's), (Start: 46 @57475 has 29 MA's),  
(52, 57517),