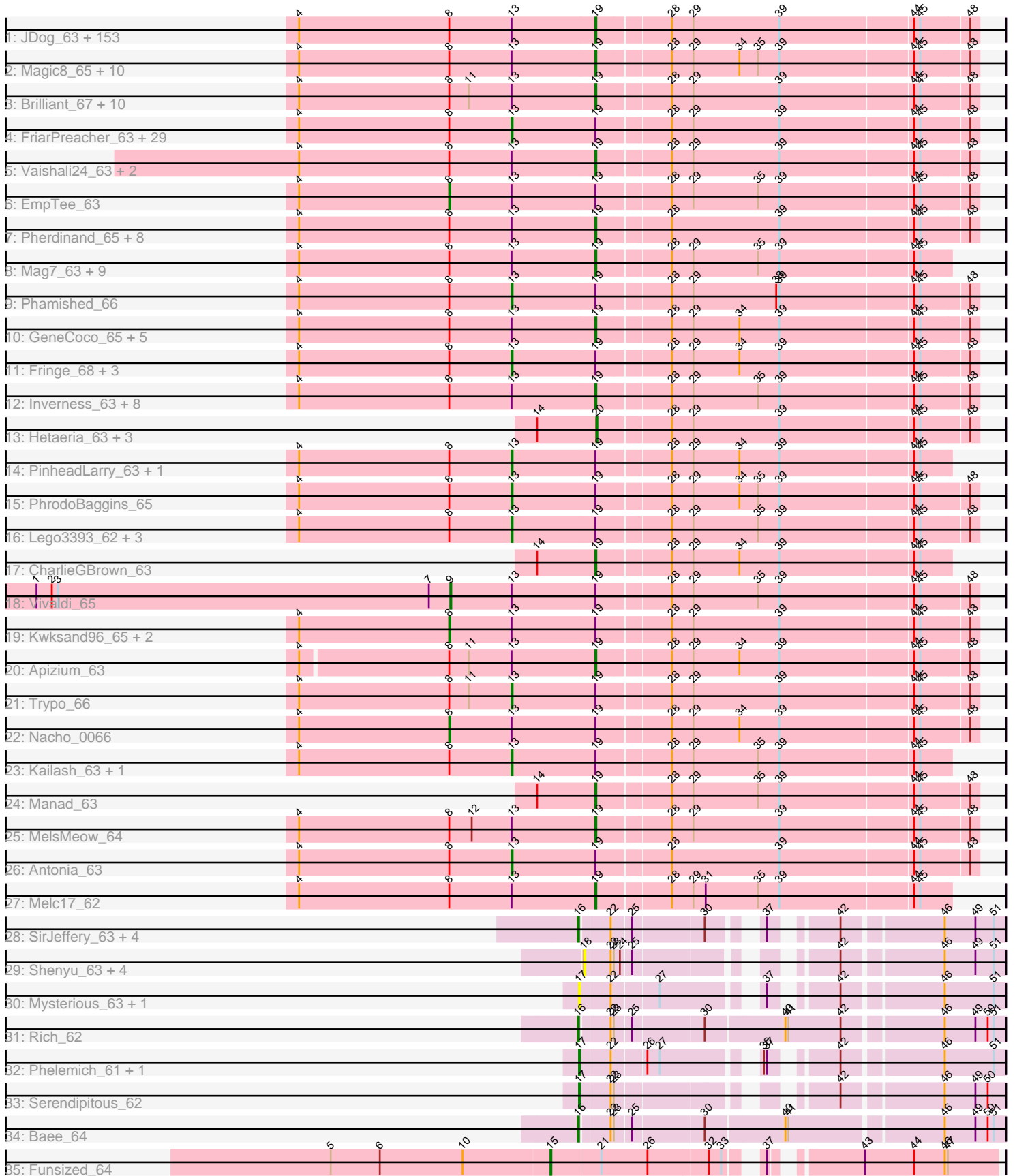


# Pham 196239



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 196239 Report

This analysis was run 12/09/24 on database version 580.

Pham number 196239 has 292 members, 20 are drafts.

Phages represented in each track:

- Track 1 : JDog\_63, Fang\_65, FugateOSU\_65, Lasso\_64, Eugenia\_64, AbsoluteMadLad\_64, Murdoc\_62, DirtJuice\_65, Zelda\_65, Keitherie\_66, Orfeu\_63, BlueHusk\_66, Mulan\_64, Scoot17C\_64, Andre\_66, Prickles\_66, Sigman\_64, Dice\_63, Chaelin\_65, Legolas\_66, Buckeye\_64, PhatCats2014\_64, Orwigg\_64, Emiris\_66, Thora\_63, Vortex\_63, Colbert\_62, JangoPhett\_64, Phareon\_63, LemonSlice\_65, CheetO\_64, Burr\_64, Toni\_64, PhatLouie\_66, Kahve\_64, LeiMonet\_67, Frankicide\_62, Basato\_64, Morgushi\_63, Daffy\_63, DonSanchon\_61, Quisquiliae\_65, YouGoGlencoco\_65, KLucky39\_62, Grand2040\_63, Jiraiya\_68, Cornobble\_63, KlimbOn\_64, Altwerkus\_62, Cher\_64, ProfessorX\_63, Lulwa\_62, Nyala\_63, Wallhey\_65, Beaglebox\_63, OSmaximus\_65, Tomlarah\_65, HenryJackson\_64, Placalicious\_65, PG1\_64, Jillium\_64, Megamind20\_65, HighStump\_66, LuckyMarjie\_62, Pacifista\_63, Chah\_65, Lopsy\_62, Sophia\_63, KingTut\_56, RedMaple\_65, Surely\_64, Slatt\_65, Chorkpop\_64, Mutante\_64, Mecca\_64, Katniss\_65, Plmatters\_63, Childish\_63, True\_63, Virapocalypse\_65, Skippy\_65, Chute\_65, Harvey\_62, Newman\_62, MRabcd\_64, TallGrassMM\_63, Gophee\_65, Hocus\_63, Iridoclysis\_64, ABU\_64, Mikota\_62, Cannibal\_64, DaddyDaniels\_66, Swiphy\_68, Orion\_65, Matalotodo\_63, Charles1\_65, Dione\_62, Telesworld\_62, Dingo\_62, Puhltonio\_63, Coletti\_67, Riggan\_65, Nicole21\_65, SassyCat97\_63, Cosmolli16\_65, Mana\_63, Simielle\_64, Daka\_67, Haimas\_63, Waterdiva\_64, Usavi\_64, Lumine\_65, Phunky\_62, Badfish\_64, Squiggle\_64, Oosterbaan\_63, Numberten\_63, Freya\_61, Olive\_64, Omniscient\_65, Timmi\_63, MiniBoss\_62, Ricotta\_64, Thunderbird\_64, Xavier\_63, Tooj\_62, TomBombadil\_64, LostAndPhound\_64, Selr12\_65, Roscoe\_65, Kwadwo\_63, Kloppinator\_65, Pinkman\_64, Phipps\_64, Anderson\_65, Sheila\_61, Maru\_64, Potter\_62, Hamish\_62, Zaidar\_65, Vaticameos\_61, Longacauda\_65, Adriana\_66, Schadenfreude\_64, Mcshane\_63, Serendipity\_63, Horchata\_62, Mesh1\_65, UncleHowie\_62, Fozzie\_64, Olak\_63, SilverBell\_65, OliverWalter\_62
- Track 2 : Magic8\_65, Phergie\_65, PhrankReynolds\_64, Inchworm\_66, Ashraf\_65, CampRoach\_65, Bluephacebaby\_64, LasagnaCat\_66, PhenghisKhan\_65, Maskar\_65, ImtiyazSitla\_65
- Track 3 : Brilliant\_67, Oline\_64, Durga\_67, DelRivs\_62, Duggie\_64, Jiminy\_65, Soile\_65, JakeO\_65, Rimu\_67, Struggle\_65, MrPhizzler\_64
- Track 4 : FriarPreacher\_63, Lulumae\_61, Podrick\_63, Vista\_63, Megatron\_64, Cobra\_65, Held\_63, LeeLot\_64, Mosaic\_62, ShiVal\_62, Zonia\_65, HSavage\_62, Pipsqueak\_62, Eremos\_63, MitKao\_64, Gareth\_64, Serpentine\_0064, JacAttac\_65, Squid\_63, Hertubise\_63, Soto\_62, Giraffe\_64, DoesntMatter\_61, Bishoperium\_64, ThreeOh3D2\_65, SDcharge11\_64, Roy17\_62, Windsor\_64, Morty\_65, Haleema\_63

- Track 5 : Vaishali24\_63, Carthage\_63, Robyn\_64
- Track 6 : EmpTee\_63
- Track 7 : Pherdinand\_65, Swish\_65, Aelin\_64, Samaymay\_64, QueenBeane\_64, BlackStallion\_65, FluffyNinja\_65, Yoshand\_65, CamL\_64
- Track 8 : Mag7\_63, DuchessDung\_64, Veritas\_64, Etaye\_64, Dati\_62, MichaelPhcott\_63, Hartsy\_63, Weher20\_62, BatteryCK\_63, Phleuron\_63
- Track 9 : Phamished\_66
- Track 10 : GeneCoco\_65, Gwilliam\_66, Schueller\_65, Scrick\_64, Virgeve\_63, Labeouficaum\_65
- Track 11 : Fringe\_68, Gyarad\_0063, Derpp\_64, TyrionL\_65
- Track 12 : Inverness\_63, Boehler\_64, Banjo\_63, Roliet\_62, Crownjwl\_63, Kimbrough\_65, AltPhacts\_63, Spartan300\_64, Valjean\_64
- Track 13 : Hetaeria\_63, IsaacEli\_65, Kikipoo\_65, UAch1\_64
- Track 14 : PinheadLarry\_63, Pops\_62
- Track 15 : PhrodoBaggins\_65
- Track 16 : Lego3393\_62, Craff\_67, Chunky\_63, KingVeVeVe\_63
- Track 17 : CharlieGBrown\_63
- Track 18 : Vivaldi\_65
- Track 19 : Kwksand96\_65, Piglet\_0064, Suffolk\_62
- Track 20 : Apizium\_63
- Track 21 : Trypo\_66
- Track 22 : Nacho\_0066
- Track 23 : Kailash\_63, Doddsville\_63
- Track 24 : Manad\_63
- Track 25 : MelsMeow\_64
- Track 26 : Antonia\_63
- Track 27 : Melc17\_62
- Track 28 : SirJeffery\_63, EastView9101\_63, Acadian\_64, Suigeneris\_65, Donny\_65
- Track 29 : Shenyu\_63, StinkyVeggy\_63, DigitDog\_64, KarasumaRum\_63, Nangang\_63
- Track 30 : Mysterious\_63, Nehemiah\_62
- Track 31 : Rich\_62
- Track 32 : Phelemich\_61, Reprobate\_62
- Track 33 : Serendipitous\_62
- Track 34 : Bae\_64
- Track 35 : Funsized\_64

***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 206 of the 272 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- ABU\_64, AbsoluteMadLad\_64, Adriana\_66, Aelin\_64, AltPhacts\_63, Altwerkus\_62, Anderson\_65, Andre\_66, Apizium\_63, Ashraf\_65, Badfish\_64, Banjo\_63, Basato\_64, BatteryCK\_63, Beaglebox\_63, BlackStallion\_65, BlueHusk\_66, Bluephacebaby\_64, Boehler\_64, Brilliant\_67, Buckeye\_64, Burr\_64, CamL\_64, CampRoach\_65, Cannibal\_64, Carthage\_63, Chaelin\_65, Chah\_65, Charles1\_65, CharlieGBrown\_63, CheetO\_64, Cher\_64, Childish\_63, Chorkpop\_64, Chute\_65, Colbert\_62, Coletti\_67, Cornobble\_63, Cosmolli16\_65, Crownjwl\_63, DaddyDaniels\_66, Daffy\_63, Daka\_67,

Dati\_62, DelRivs\_62, Dice\_63, Dingo\_62, Dione\_62, DirtJuice\_65, DonSanchon\_61, DuchessDung\_64, Duggie\_64, Durga\_67, Emiris\_66, Etaye\_64, Eugenia\_64, Fang\_65, FluffyNinja\_65, Fozzie\_64, Frankicide\_62, Freya\_61, FugateOSU\_65, GeneCoco\_65, Gophee\_65, Grand2040\_63, Gwilliam\_66, Haimas\_63, Hamish\_62, Hartsy\_63, Harvey\_62, HenryJackson\_64, HighStump\_66, Hocus\_63, Horchata\_62, ImtiyazSitla\_65, Inchworm\_66, Inverness\_63, Iridoclysis\_64, JDog\_63, JakeO\_65, JangoPhett\_64, Jillium\_64, Jiminy\_65, Jiraiya\_68, KLucky39\_62, Kahve\_64, Katniss\_65, Keitherie\_66, Kimbrough\_65, KingTut\_56, KlimbOn\_64, Kloppinator\_65, Kwadwo\_63, Labeouficaum\_65, LasagnaCat\_66, Lasso\_64, Legolas\_66, LeiMonet\_67, LemonSlice\_65, Longacauda\_65, Lopsy\_62, LostAndPhound\_64, LuckyMarjie\_62, Lulwa\_62, Lumine\_65, MRabcd\_64, Mag7\_63, Magic8\_65, Mana\_63, Manad\_63, Maru\_64, Maskar\_65, Matalotodo\_63, Mcshane\_63, Mecca\_64, Megamind20\_65, Melc17\_62, MelsMeow\_64, Mesh1\_65, MichaelPhcott\_63, Mikota\_62, MiniBoss\_62, Morgushi\_63, MrPhizzler\_64, Mulan\_64, Murdoc\_62, Mutante\_64, Newman\_62, Nicole21\_65, Numberten\_63, Nyala\_63, OSmaximus\_65, Olak\_63, Oline\_64, Olive\_64, OliverWalter\_62, Omniscient\_65, Oosterbaan\_63, Orfeu\_63, Orion\_65, Orwigg\_64, PG1\_64, Pacifista\_63, Phareon\_63, PhatCats2014\_64, PhatLouie\_66, PhenghisKhan\_65, Pherdinand\_65, Phergie\_65, Phipps\_64, Phleuron\_63, PhrankReynolds\_64, Phunky\_62, Pinkman\_64, Placalicious\_65, Plmatters\_63, Potter\_62, Prickles\_66, ProfessorX\_63, Puhltonio\_63, QueenBeane\_64, Quisquillae\_65, RedMaple\_65, Ricotta\_64, Riggan\_65, Rimu\_67, Robyn\_64, Roliet\_62, Roscoe\_65, Samaymay\_64, SassyCat97\_63, Schadenfreude\_64, Schueller\_65, Scoot17C\_64, Scrick\_64, Selr12\_65, Serendipity\_63, Sheila\_61, Sigman\_64, SilverBell\_65, Simielle\_64, Skippy\_65, Slatt\_65, Soile\_65, Sophia\_63, Spartan300\_64, Squiggle\_64, Struggle\_65, Surely\_64, Swiphy\_68, Swish\_65, TallGrassMM\_63, Telesworld\_62, Thora\_63, Thunderbird\_64, Timmi\_63, TomBombadil\_64, Tomlarah\_65, Toni\_64, Tooj\_62, True\_63, UncleHowie\_62, Usavi\_64, Vaishali24\_63, Valjean\_64, Vaticameos\_61, Veritas\_64, Virapocalypse\_65, Virgeve\_63, Vortex\_63, Wallhey\_65, Waterdiva\_64, Weher20\_62, Xavier\_63, Yoshand\_65, YouGoGlencoco\_65, Zaider\_65, Zelda\_65,

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

- Antonia\_63, Bishoperium\_64, Chunky\_63, Cobra\_65, Craff\_67, Derpp\_64, Doddsville\_63, DoesntMatter\_61, EmpTee\_63, Eremos\_63, FriarPreacher\_63, Fringe\_68, Gareth\_64, Giraffe\_64, Gyarad\_0063, HSavage\_62, Haleema\_63, Held\_63, Hertubise\_63, JacAttac\_65, Kailash\_63, KingVeVeVe\_63, Kwksand96\_65, LeeLot\_64, Lego3393\_62, Lulumae\_61, Megatron\_64, MitKao\_64, Morty\_65, Mosaic\_62, Nacho\_0066, Phamished\_66, PhrodoBaggins\_65, Piglet\_0064, PinheadLarry\_63, Pipsqueak\_62, Podrick\_63, Pops\_62, Roy17\_62, SDcharge11\_64, Serpentine\_0064, ShiVal\_62, Soto\_62, Squid\_63, Suffolk\_62, ThreeOh3D2\_65, Trypo\_66, TyrionL\_65, Vista\_63, Vivaldi\_65, Windsor\_64, Zonia\_65,

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

- Acadian\_64, Bae\_64, DigitDog\_64, Donny\_65, EastView9101\_63, Funsized\_64, Hetaeria\_63, IsaacEli\_65, KarasumaRum\_63, Kikipoo\_65, Mysterious\_63, Nangang\_63, Nehemiah\_62, Phelemich\_61, Reprobate\_62, Rich\_62, Serendipitous\_62, Shenyu\_63, SirJeffery\_63, StinkyVeggy\_63, Suigeneris\_65, UAch1\_64,

### Summary by start number:

Start 8:

- Found in 267 of 292 ( 91.4% ) of genes in pham
- Manual Annotations of this start: 5 of 272
- Called 1.9% of time when present
- Phage (with cluster) where this start called: EmpTee\_63 (B1), Kwksand96\_65 (B1), Nacho\_0066 (B1), Piglet\_0064 (B1), Suffolk\_62 (B1),

#### Start 9:

- Found in 1 of 292 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 272
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Vivaldi\_65 (B1),

#### Start 13:

- Found in 268 of 292 ( 91.8% ) of genes in pham
- Manual Annotations of this start: 46 of 272
- Called 17.2% of time when present
- Phage (with cluster) where this start called: Antonia\_63 (B1), Bishoperium\_64 (B1), Chunky\_63 (B1), Cobra\_65 (B1), Craff\_67 (B1), Derpp\_64 (B1), Doddsville\_63 (B1), DoesntMatter\_61 (B1), Eremos\_63 (B1), FriarPreacher\_63 (B1), Fringe\_68 (B1), Gareth\_64 (B1), Giraffe\_64 (B1), Gyarad\_0063 (B1), HSavage\_62 (B1), Haleema\_63 (B1), Held\_63 (B1), Hertubise\_63 (B1), JacAttac\_65 (B1), Kailash\_63 (B1), KingVeVeVe\_63 (B1), LeeLot\_64 (B1), Lego3393\_62 (B1), Lulumae\_61 (B1), Megatron\_64 (B1), MitKao\_64 (B1), Morty\_65 (B1), Mosaic\_62 (B1), Phamished\_66 (B1), PhrodoBaggins\_65 (B1), PinheadLarry\_63 (B1), Pipsqueak\_62 (B1), Podrick\_63 (B1), Pops\_62 (B1), Roy17\_62 (B1), SDcharge11\_64 (B1), Serpentine\_0064 (B1), ShiVal\_62 (B1), Soto\_62 (B1), Squid\_63 (B1), ThreeOh3D2\_65 (B1), Trypo\_66 (B1), TyrionL\_65 (B1), Vista\_63 (B1), Windsor\_64 (B1), Zonia\_65 (B1),

#### Start 15:

- Found in 1 of 292 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 272
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Funsized\_64 (B9),

#### Start 16:

- Found in 7 of 292 ( 2.4% ) of genes in pham
- Manual Annotations of this start: 6 of 272
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Acadian\_64 (B5), Bae\_64 (B5), Donny\_65 (B5), EastView9101\_63 (B5), Rich\_62 (B5), SirJeffery\_63 (B5), Suigeneris\_65 (B5),

#### Start 17:

- Found in 5 of 292 ( 1.7% ) of genes in pham
- Manual Annotations of this start: 3 of 272
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Mysterious\_63 (B5), Nehemiah\_62 (B5), Phelemich\_61 (B5), Reprobate\_62 (B5), Serendipitous\_62 (B5),

#### Start 18:

- Found in 5 of 292 ( 1.7% ) of genes in pham
- No Manual Annotations of this start.

- Called 100.0% of time when present
- Phage (with cluster) where this start called: DigitDog\_64 (B5), KarasumaRum\_63 (B5), Nangang\_63 (B5), Shenyu\_63 (B5), StinkyVeggy\_63 (B5),

Start 19:

- Found in 270 of 292 ( 92.5% ) of genes in pham
- Manual Annotations of this start: 206 of 272
- Called 80.7% of time when present
- Phage (with cluster) where this start called: ABU\_64 (B1), AbsoluteMadLad\_64 (B1), Adriana\_66 (B1), Aelin\_64 (B1), AltPhacts\_63 (B1), Altwerkus\_62 (B1), Anderson\_65 (B1), Andre\_66 (B1), Apizium\_63 (B1), Ashraf\_65 (B1), Badfish\_64 (B1), Banjo\_63 (B1), Basato\_64 (B1), BatteryCK\_63 (B1), Beaglebox\_63 (B1), BlackStallion\_65 (B1), BlueHusk\_66 (B1), Bluephacebaby\_64 (B1), Boehler\_64 (B1), Brilliant\_67 (B1), Buckeye\_64 (B1), Burr\_64 (B1), CamL\_64 (B1), CampRoach\_65 (B1), Cannibal\_64 (B1), Carthage\_63 (B1), Chaelin\_65 (B1), Chah\_65 (B1), Charles1\_65 (B1), CharlieGBrown\_63 (B1), CheetO\_64 (B1), Cher\_64 (B1), Childish\_63 (B1), Chorkpop\_64 (B1), Chute\_65 (B1), Colbert\_62 (B1), Coletti\_67 (B1), Cornobble\_63 (B1), Cosmolli16\_65 (B1), Crownjwl\_63 (B1), DaddyDaniels\_66 (B1), Daffy\_63 (B1), Daka\_67 (B1), Dati\_62 (B1), DelRivs\_62 (B1), Dice\_63 (B1), Dingo\_62 (B1), Dione\_62 (B1), DirtJuice\_65 (B1), DonSanchon\_61 (B1), DuchessDung\_64 (B1), Duggie\_64 (B1), Durga\_67 (B1), Emiris\_66 (B1), Etaye\_64 (B1), Eugenia\_64 (B1), Fang\_65 (B1), FluffyNinja\_65 (B1), Fozzie\_64 (B1), Frankicide\_62 (B1), Freya\_61 (B1), FugateOSU\_65 (B1), GeneCoco\_65 (B1), Gophee\_65 (B1), Grand2040\_63 (B1), Gwilliam\_66 (B1), Haimas\_63 (B1), Hamish\_62 (B1), Hartsy\_63 (B1), Harvey\_62 (B1), HenryJackson\_64 (B1), HighStump\_66 (B1), Hocus\_63 (B1), Horchata\_62 (B1), ImtiyazSitla\_65 (B1), Inchworm\_66 (B1), Inverness\_63 (B1), Iridoclysis\_64 (B1), JDog\_63 (B1), JakeO\_65 (B1), JangoPhett\_64 (B1), Jillium\_64 (B1), Jiminy\_65 (B1), Jiraiya\_68 (B1), KLucky39\_62 (B1), Kahve\_64 (B1), Katniss\_65 (B1), Keitherie\_66 (B1), Kimbrough\_65 (B1), KingTut\_56 (B1), KlimbOn\_64 (B1), Kloppinator\_65 (B1), Kwadwo\_63 (B1), Labeouficaum\_65 (B1), LasagnaCat\_66 (B1), Lasso\_64 (B1), Legolas\_66 (B1), LeiMonet\_67 (B1), LemonSlice\_65 (B1), Longacauda\_65 (B1), Lopsy\_62 (B1), LostAndPhound\_64 (B1), LuckyMarjie\_62 (B1), Lulwa\_62 (B1), Lumine\_65 (B1), MRabcd\_64 (B1), Mag7\_63 (B1), Magic8\_65 (B1), Mana\_63 (B1), Manad\_63 (B1), Maru\_64 (B1), Maskar\_65 (B1), Matalotodo\_63 (B1), Mcshane\_63 (B1), Mecca\_64 (B1), Megamind20\_65 (B1), Melc17\_62 (B1), MelsMeow\_64 (B1), Mesh1\_65 (B1), MichaelPhcott\_63 (B1), Mikota\_62 (B1), MiniBoss\_62 (B1), Morgushi\_63 (B1), MrPhizzler\_64 (B1), Mulan\_64 (B1), Murdoc\_62 (B1), Mutante\_64 (B1), Newman\_62 (B1), Nicole21\_65 (B1), Numberten\_63 (B1), Nyala\_63 (B1), OSmaximus\_65 (B1), Olak\_63 (B1), Oline\_64 (B1), Olive\_64 (B1), OliverWalter\_62 (B1), Omniscient\_65 (B1), Oosterbaan\_63 (B1), Orfeu\_63 (B1), Orion\_65 (B1), Orwigg\_64 (B1), PG1\_64 (B1), Pacifista\_63 (B1), Phareon\_63 (B1), PhatCats2014\_64 (B1), PhatLouie\_66 (B1), PhenghisKhan\_65 (B1), Pherdinand\_65 (B1), Phergie\_65 (B1), Phipps\_64 (B1), Phleuron\_63 (B1), PhrankReynolds\_64 (B1), Phunky\_62 (B1), Pinkman\_64 (B1), Placalicious\_65 (B1), Plmatters\_63 (B1), Potter\_62 (B1), Prickles\_66 (B1), ProfessorX\_63 (B1), Puhltonio\_63 (B1), QueenBeane\_64 (B1), Quisquiliae\_65 (B1), RedMaple\_65 (B1), Ricotta\_64 (B1), Riggan\_65 (B1), Rimu\_67 (B1), Robyn\_64 (B1), Roliet\_62 (B1), Roscoe\_65 (B1), Samaymay\_64 (B1), SassyCat97\_63 (B1), Schadenfreude\_64 (B1), Schueller\_65 (B1), Scoot17C\_64 (B1), Scrick\_64 (B1), Selr12\_65 (B1), Serendipity\_63 (B1), Sheila\_61 (B1), Sigman\_64 (B1), SilverBell\_65 (B1), Simielle\_64 (B1), Skippy\_65 (B1), Slatt\_65 (B1), Soile\_65 (B1), Sophia\_63 (B1), Spartan300\_64 (B1), Squiggle\_64 (B1), Struggle\_65 (B1), Surely\_64 (B1), Swiphy\_68 (B1), Swish\_65

(B1), TallGrassMM\_63 (B1), Telesworld\_62 (B1), Thora\_63 (B1), Thunderbird\_64 (B1), Timmi\_63 (B1), TomBombadil\_64 (B1), Tomlarah\_65 (B1), Toni\_64 (B1), Tooj\_62 (B1), True\_63 (B1), UncleHowie\_62 (B1), Usavi\_64 (B1), Vaishali24\_63 (B1), Valjean\_64 (B1), Vaticameos\_61 (B1), Veritas\_64 (B1), Virapocalypse\_65 (B1), Virgeve\_63 (B1), Vortex\_63 (B1), Wallhey\_65 (B1), Waterdiva\_64 (B1), Weher20\_62 (B1), Xavier\_63 (B1), Yoshand\_65 (B1), YouGoGlencoco\_65 (B1), Zaider\_65 (B1), Zelda\_65 (B1),

Start 20:

- Found in 4 of 292 ( 1.4% ) of genes in pham
- Manual Annotations of this start: 4 of 272
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Hetaeria\_63 (B1), IsaacEli\_65 (B1), Kikipoo\_65 (B1), UAch1\_64 (B1),

### **Summary by clusters:**

There are 3 clusters represented in this pham: B5, B1, B9,

Info for manual annotations of cluster B1:

- Start number 8 was manually annotated 5 times for cluster B1.
- Start number 9 was manually annotated 1 time for cluster B1.
- Start number 13 was manually annotated 46 times for cluster B1.
- Start number 19 was manually annotated 206 times for cluster B1.
- Start number 20 was manually annotated 4 times for cluster B1.

Info for manual annotations of cluster B5:

- Start number 16 was manually annotated 6 times for cluster B5.
- Start number 17 was manually annotated 3 times for cluster B5.

Info for manual annotations of cluster B9:

- Start number 15 was manually annotated 1 time for cluster B9.

### **Gene Information:**

Gene: ABU\_64 Start: 55588, Stop: 55232, Start Num: 19

Candidate Starts for ABU\_64:

(4, 55876), (Start: 8 @55729 has 5 MA's), (Start: 13 @55669 has 46 MA's), (Start: 19 @55588 has 206 MA's), (28, 55522), (29, 55501), (39, 55417), (44, 55291), (45, 55285), (48, 55240),

Gene: AbsoluteMadLad\_64 Start: 55542, Stop: 55186, Start Num: 19

Candidate Starts for AbsoluteMadLad\_64:

(4, 55830), (Start: 8 @55683 has 5 MA's), (Start: 13 @55623 has 46 MA's), (Start: 19 @55542 has 206 MA's), (28, 55476), (29, 55455), (39, 55371), (44, 55245), (45, 55239), (48, 55194),

Gene: Acadian\_64 Start: 56676, Stop: 56335, Start Num: 16

Candidate Starts for Acadian\_64:

(Start: 16 @56676 has 6 MA's), (22, 56649), (25, 56631), (30, 56565), (37, 56532), (42, 56484), (46, 56394), (49, 56364), (51, 56346),

Gene: Adriana\_66 Start: 56169, Stop: 55813, Start Num: 19

Candidate Starts for Adriana\_66:

(4, 56457), (Start: 8 @56310 has 5 MA's), (Start: 13 @56250 has 46 MA's), (Start: 19 @56169 has 206 MA's), (28, 56103), (29, 56082), (39, 55998), (44, 55872), (45, 55866), (48, 55821),

Gene: Aelin\_64 Start: 55106, Stop: 54750, Start Num: 19

Candidate Starts for Aelin\_64:

(4, 55394), (Start: 8 @55247 has 5 MA's), (Start: 13 @55187 has 46 MA's), (Start: 19 @55106 has 206 MA's), (28, 55040), (39, 54935), (44, 54809), (45, 54803), (48, 54758),

Gene: AltPhacts\_63 Start: 54655, Stop: 54299, Start Num: 19

Candidate Starts for AltPhacts\_63:

(4, 54943), (Start: 8 @54796 has 5 MA's), (Start: 13 @54736 has 46 MA's), (Start: 19 @54655 has 206 MA's), (28, 54589), (29, 54568), (35, 54505), (39, 54484), (44, 54358), (45, 54352), (48, 54307),

Gene: Altwerkus\_62 Start: 54752, Stop: 54396, Start Num: 19

Candidate Starts for Altwerkus\_62:

(4, 55040), (Start: 8 @54893 has 5 MA's), (Start: 13 @54833 has 46 MA's), (Start: 19 @54752 has 206 MA's), (28, 54686), (29, 54665), (39, 54581), (44, 54455), (45, 54449), (48, 54404),

Gene: Anderson\_65 Start: 55324, Stop: 54968, Start Num: 19

Candidate Starts for Anderson\_65:

(4, 55612), (Start: 8 @55465 has 5 MA's), (Start: 13 @55405 has 46 MA's), (Start: 19 @55324 has 206 MA's), (28, 55258), (29, 55237), (39, 55153), (44, 55027), (45, 55021), (48, 54976),

Gene: Andre\_66 Start: 55500, Stop: 55144, Start Num: 19

Candidate Starts for Andre\_66:

(4, 55788), (Start: 8 @55641 has 5 MA's), (Start: 13 @55581 has 46 MA's), (Start: 19 @55500 has 206 MA's), (28, 55434), (29, 55413), (39, 55329), (44, 55203), (45, 55197), (48, 55152),

Gene: Antonia\_63 Start: 55187, Stop: 54750, Start Num: 13

Candidate Starts for Antonia\_63:

(4, 55394), (Start: 8 @55247 has 5 MA's), (Start: 13 @55187 has 46 MA's), (Start: 19 @55106 has 206 MA's), (28, 55040), (39, 54935), (44, 54809), (45, 54803), (48, 54758),

Gene: Apizium\_63 Start: 54774, Stop: 54418, Start Num: 19

Candidate Starts for Apizium\_63:

(4, 55056), (Start: 8 @54915 has 5 MA's), (11, 54897), (Start: 13 @54855 has 46 MA's), (Start: 19 @54774 has 206 MA's), (28, 54708), (29, 54687), (34, 54642), (39, 54603), (44, 54477), (45, 54471), (48, 54426),

Gene: Ashraf\_65 Start: 55320, Stop: 54964, Start Num: 19

Candidate Starts for Ashraf\_65:

(4, 55608), (Start: 8 @55461 has 5 MA's), (Start: 13 @55401 has 46 MA's), (Start: 19 @55320 has 206 MA's), (28, 55254), (29, 55233), (34, 55188), (35, 55170), (39, 55149), (44, 55023), (45, 55017), (48, 54972),

Gene: Badfish\_64 Start: 55610, Stop: 55254, Start Num: 19

Candidate Starts for Badfish\_64:

(4, 55898), (Start: 8 @55751 has 5 MA's), (Start: 13 @55691 has 46 MA's), (Start: 19 @55610 has 206 MA's), (28, 55544), (29, 55523), (39, 55439), (44, 55313), (45, 55307), (48, 55262),

Gene: Bae\_64 Start: 57648, Stop: 57262, Start Num: 16

Candidate Starts for Bae\_64:



(Start: 16 @57648 has 6 MA's), (22, 57621), (23, 57618), (25, 57603), (30, 57537), (40, 57465), (41, 57462), (46, 57321), (49, 57291), (50, 57279), (51, 57273),

Gene: Banjo\_63 Start: 55099, Stop: 54743, Start Num: 19

Candidate Starts for Banjo\_63:

(4, 55387), (Start: 8 @55240 has 5 MA's), (Start: 13 @55180 has 46 MA's), (Start: 19 @55099 has 206 MA's), (28, 55033), (29, 55012), (35, 54949), (39, 54928), (44, 54802), (45, 54796), (48, 54751),

Gene: Basato\_64 Start: 55373, Stop: 55017, Start Num: 19

Candidate Starts for Basato\_64:

(4, 55661), (Start: 8 @55514 has 5 MA's), (Start: 13 @55454 has 46 MA's), (Start: 19 @55373 has 206 MA's), (28, 55307), (29, 55286), (39, 55202), (44, 55076), (45, 55070), (48, 55025),

Gene: BatteryCK\_63 Start: 55067, Stop: 54735, Start Num: 19

Candidate Starts for BatteryCK\_63:

(4, 55355), (Start: 8 @55208 has 5 MA's), (Start: 13 @55148 has 46 MA's), (Start: 19 @55067 has 206 MA's), (28, 55001), (29, 54980), (35, 54917), (39, 54896), (44, 54770), (45, 54764),

Gene: Beaglebox\_63 Start: 55163, Stop: 54807, Start Num: 19

Candidate Starts for Beaglebox\_63:

(4, 55451), (Start: 8 @55304 has 5 MA's), (Start: 13 @55244 has 46 MA's), (Start: 19 @55163 has 206 MA's), (28, 55097), (29, 55076), (39, 54992), (44, 54866), (45, 54860), (48, 54815),

Gene: Bishoperium\_64 Start: 55719, Stop: 55282, Start Num: 13

Candidate Starts for Bishoperium\_64:

(4, 55926), (Start: 8 @55779 has 5 MA's), (Start: 13 @55719 has 46 MA's), (Start: 19 @55638 has 206 MA's), (28, 55572), (29, 55551), (39, 55467), (44, 55341), (45, 55335), (48, 55290),

Gene: BlackStallion\_65 Start: 55367, Stop: 55011, Start Num: 19

Candidate Starts for BlackStallion\_65:

(4, 55655), (Start: 8 @55508 has 5 MA's), (Start: 13 @55448 has 46 MA's), (Start: 19 @55367 has 206 MA's), (28, 55301), (39, 55196), (44, 55070), (45, 55064), (48, 55019),

Gene: BlueHusk\_66 Start: 55122, Stop: 54766, Start Num: 19

Candidate Starts for BlueHusk\_66:

(4, 55410), (Start: 8 @55263 has 5 MA's), (Start: 13 @55203 has 46 MA's), (Start: 19 @55122 has 206 MA's), (28, 55056), (29, 55035), (39, 54951), (44, 54825), (45, 54819), (48, 54774),

Gene: Bluephacebaby\_64 Start: 55641, Stop: 55285, Start Num: 19

Candidate Starts for Bluephacebaby\_64:

(4, 55929), (Start: 8 @55782 has 5 MA's), (Start: 13 @55722 has 46 MA's), (Start: 19 @55641 has 206 MA's), (28, 55575), (29, 55554), (34, 55509), (35, 55491), (39, 55470), (44, 55344), (45, 55338), (48, 55293),

Gene: Boehler\_64 Start: 55285, Stop: 54929, Start Num: 19

Candidate Starts for Boehler\_64:

(4, 55573), (Start: 8 @55426 has 5 MA's), (Start: 13 @55366 has 46 MA's), (Start: 19 @55285 has 206 MA's), (28, 55219), (29, 55198), (35, 55135), (39, 55114), (44, 54988), (45, 54982), (48, 54937),

Gene: Brilliant\_67 Start: 55607, Stop: 55251, Start Num: 19

Candidate Starts for Brilliant\_67:

(4, 55895), (Start: 8 @55748 has 5 MA's), (11, 55730), (Start: 13 @55688 has 46 MA's), (Start: 19 @55607 has 206 MA's), (28, 55541), (29, 55520), (39, 55436), (44, 55310), (45, 55304), (48, 55259),

Gene: Buckeye\_64 Start: 55899, Stop: 55543, Start Num: 19

Candidate Starts for Buckeye\_64:

(4, 56187), (Start: 8 @56040 has 5 MA's), (Start: 13 @55980 has 46 MA's), (Start: 19 @55899 has 206 MA's), (28, 55833), (29, 55812), (39, 55728), (44, 55602), (45, 55596), (48, 55551),

Gene: Burr\_64 Start: 55074, Stop: 54718, Start Num: 19

Candidate Starts for Burr\_64:

(4, 55362), (Start: 8 @55215 has 5 MA's), (Start: 13 @55155 has 46 MA's), (Start: 19 @55074 has 206 MA's), (28, 55008), (29, 54987), (39, 54903), (44, 54777), (45, 54771), (48, 54726),

Gene: CamL\_64 Start: 55406, Stop: 55050, Start Num: 19

Candidate Starts for CamL\_64:

(4, 55694), (Start: 8 @55547 has 5 MA's), (Start: 13 @55487 has 46 MA's), (Start: 19 @55406 has 206 MA's), (28, 55340), (39, 55235), (44, 55109), (45, 55103), (48, 55058),

Gene: CampRoach\_65 Start: 55511, Stop: 55155, Start Num: 19

Candidate Starts for CampRoach\_65:

(4, 55799), (Start: 8 @55652 has 5 MA's), (Start: 13 @55592 has 46 MA's), (Start: 19 @55511 has 206 MA's), (28, 55445), (29, 55424), (34, 55379), (35, 55361), (39, 55340), (44, 55214), (45, 55208), (48, 55163),

Gene: Cannibal\_64 Start: 55348, Stop: 54992, Start Num: 19

Candidate Starts for Cannibal\_64:

(4, 55636), (Start: 8 @55489 has 5 MA's), (Start: 13 @55429 has 46 MA's), (Start: 19 @55348 has 206 MA's), (28, 55282), (29, 55261), (39, 55177), (44, 55051), (45, 55045), (48, 55000),

Gene: Carthage\_63 Start: 54586, Stop: 54230, Start Num: 19

Candidate Starts for Carthage\_63:

(4, 54874), (Start: 8 @54727 has 5 MA's), (Start: 13 @54667 has 46 MA's), (Start: 19 @54586 has 206 MA's), (28, 54520), (29, 54499), (39, 54415), (44, 54289), (45, 54283), (48, 54238),

Gene: Chaelin\_65 Start: 55636, Stop: 55280, Start Num: 19

Candidate Starts for Chaelin\_65:

(4, 55924), (Start: 8 @55777 has 5 MA's), (Start: 13 @55717 has 46 MA's), (Start: 19 @55636 has 206 MA's), (28, 55570), (29, 55549), (39, 55465), (44, 55339), (45, 55333), (48, 55288),

Gene: Chah\_65 Start: 55051, Stop: 54695, Start Num: 19

Candidate Starts for Chah\_65:

(4, 55339), (Start: 8 @55192 has 5 MA's), (Start: 13 @55132 has 46 MA's), (Start: 19 @55051 has 206 MA's), (28, 54985), (29, 54964), (39, 54880), (44, 54754), (45, 54748), (48, 54703),

Gene: Charles1\_65 Start: 55361, Stop: 55005, Start Num: 19

Candidate Starts for Charles1\_65:

(4, 55649), (Start: 8 @55502 has 5 MA's), (Start: 13 @55442 has 46 MA's), (Start: 19 @55361 has 206 MA's), (28, 55295), (29, 55274), (39, 55190), (44, 55064), (45, 55058), (48, 55013),

Gene: CharlieGBrown\_63 Start: 55011, Stop: 54679, Start Num: 19

Candidate Starts for CharlieGBrown\_63:

(14, 55068), (Start: 19 @55011 has 206 MA's), (28, 54945), (29, 54924), (34, 54879), (39, 54840), (44, 54714), (45, 54708),

Gene: CheetO\_64 Start: 55322, Stop: 54966, Start Num: 19

Candidate Starts for CheetO\_64:

(4, 55610), (Start: 8 @55463 has 5 MA's), (Start: 13 @55403 has 46 MA's), (Start: 19 @55322 has 206 MA's), (28, 55256), (29, 55235), (39, 55151), (44, 55025), (45, 55019), (48, 54974),

Gene: Cher\_64 Start: 55616, Stop: 55260, Start Num: 19

Candidate Starts for Cher\_64:

(4, 55904), (Start: 8 @55757 has 5 MA's), (Start: 13 @55697 has 46 MA's), (Start: 19 @55616 has 206 MA's), (28, 55550), (29, 55529), (39, 55445), (44, 55319), (45, 55313), (48, 55268),

Gene: Childish\_63 Start: 55627, Stop: 55271, Start Num: 19

Candidate Starts for Childish\_63:

(4, 55915), (Start: 8 @55768 has 5 MA's), (Start: 13 @55708 has 46 MA's), (Start: 19 @55627 has 206 MA's), (28, 55561), (29, 55540), (39, 55456), (44, 55330), (45, 55324), (48, 55279),

Gene: Chorkpop\_64 Start: 55103, Stop: 54747, Start Num: 19

Candidate Starts for Chorkpop\_64:

(4, 55391), (Start: 8 @55244 has 5 MA's), (Start: 13 @55184 has 46 MA's), (Start: 19 @55103 has 206 MA's), (28, 55037), (29, 55016), (39, 54932), (44, 54806), (45, 54800), (48, 54755),

Gene: Chunky\_63 Start: 54733, Stop: 54296, Start Num: 13

Candidate Starts for Chunky\_63:

(4, 54940), (Start: 8 @54793 has 5 MA's), (Start: 13 @54733 has 46 MA's), (Start: 19 @54652 has 206 MA's), (28, 54586), (29, 54565), (35, 54502), (39, 54481), (44, 54355), (45, 54349), (48, 54304),

Gene: Chute\_65 Start: 55664, Stop: 55308, Start Num: 19

Candidate Starts for Chute\_65:

(4, 55952), (Start: 8 @55805 has 5 MA's), (Start: 13 @55745 has 46 MA's), (Start: 19 @55664 has 206 MA's), (28, 55598), (29, 55577), (39, 55493), (44, 55367), (45, 55361), (48, 55316),

Gene: Cobra\_65 Start: 55729, Stop: 55292, Start Num: 13

Candidate Starts for Cobra\_65:

(4, 55936), (Start: 8 @55789 has 5 MA's), (Start: 13 @55729 has 46 MA's), (Start: 19 @55648 has 206 MA's), (28, 55582), (29, 55561), (39, 55477), (44, 55351), (45, 55345), (48, 55300),

Gene: Colbert\_62 Start: 54662, Stop: 54306, Start Num: 19

Candidate Starts for Colbert\_62:

(4, 54950), (Start: 8 @54803 has 5 MA's), (Start: 13 @54743 has 46 MA's), (Start: 19 @54662 has 206 MA's), (28, 54596), (29, 54575), (39, 54491), (44, 54365), (45, 54359), (48, 54314),

Gene: Coletti\_67 Start: 56164, Stop: 55808, Start Num: 19

Candidate Starts for Coletti\_67:

(4, 56452), (Start: 8 @56305 has 5 MA's), (Start: 13 @56245 has 46 MA's), (Start: 19 @56164 has 206 MA's), (28, 56098), (29, 56077), (39, 55993), (44, 55867), (45, 55861), (48, 55816),

Gene: Cornobble\_63 Start: 55096, Stop: 54740, Start Num: 19

Candidate Starts for Cornobble\_63:

(4, 55384), (Start: 8 @55237 has 5 MA's), (Start: 13 @55177 has 46 MA's), (Start: 19 @55096 has 206 MA's), (28, 55030), (29, 55009), (39, 54925), (44, 54799), (45, 54793), (48, 54748),

Gene: Cosmolli16\_65 Start: 55806, Stop: 55450, Start Num: 19

Candidate Starts for Cosmolli16\_65:

(4, 56094), (Start: 8 @55947 has 5 MA's), (Start: 13 @55887 has 46 MA's), (Start: 19 @55806 has 206 MA's), (28, 55740), (29, 55719), (39, 55635), (44, 55509), (45, 55503), (48, 55458),

Gene: Craff\_67 Start: 56132, Stop: 55695, Start Num: 13

Candidate Starts for Craff\_67:

(4, 56339), (Start: 8 @56192 has 5 MA's), (Start: 13 @56132 has 46 MA's), (Start: 19 @56051 has 206 MA's), (28, 55985), (29, 55964), (35, 55901), (39, 55880), (44, 55754), (45, 55748), (48, 55703),

Gene: Crownjwl\_63 Start: 55125, Stop: 54769, Start Num: 19

Candidate Starts for Crownjwl\_63:

(4, 55413), (Start: 8 @55266 has 5 MA's), (Start: 13 @55206 has 46 MA's), (Start: 19 @55125 has 206 MA's), (28, 55059), (29, 55038), (35, 54975), (39, 54954), (44, 54828), (45, 54822), (48, 54777),

Gene: DaddyDaniels\_66 Start: 55584, Stop: 55228, Start Num: 19

Candidate Starts for DaddyDaniels\_66:

(4, 55872), (Start: 8 @55725 has 5 MA's), (Start: 13 @55665 has 46 MA's), (Start: 19 @55584 has 206 MA's), (28, 55518), (29, 55497), (39, 55413), (44, 55287), (45, 55281), (48, 55236),

Gene: Daffy\_63 Start: 55089, Stop: 54733, Start Num: 19

Candidate Starts for Daffy\_63:

(4, 55377), (Start: 8 @55230 has 5 MA's), (Start: 13 @55170 has 46 MA's), (Start: 19 @55089 has 206 MA's), (28, 55023), (29, 55002), (39, 54918), (44, 54792), (45, 54786), (48, 54741),

Gene: Daka\_67 Start: 55605, Stop: 55249, Start Num: 19

Candidate Starts for Daka\_67:

(4, 55893), (Start: 8 @55746 has 5 MA's), (Start: 13 @55686 has 46 MA's), (Start: 19 @55605 has 206 MA's), (28, 55539), (29, 55518), (39, 55434), (44, 55308), (45, 55302), (48, 55257),

Gene: Dati\_62 Start: 55432, Stop: 55100, Start Num: 19

Candidate Starts for Dati\_62:

(4, 55720), (Start: 8 @55573 has 5 MA's), (Start: 13 @55513 has 46 MA's), (Start: 19 @55432 has 206 MA's), (28, 55366), (29, 55345), (35, 55282), (39, 55261), (44, 55135), (45, 55129),

Gene: DelRivs\_62 Start: 55074, Stop: 54718, Start Num: 19

Candidate Starts for DelRivs\_62:

(4, 55362), (Start: 8 @55215 has 5 MA's), (11, 55197), (Start: 13 @55155 has 46 MA's), (Start: 19 @55074 has 206 MA's), (28, 55008), (29, 54987), (39, 54903), (44, 54777), (45, 54771), (48, 54726),

Gene: Derpp\_64 Start: 55269, Stop: 54832, Start Num: 13

Candidate Starts for Derpp\_64:

(4, 55476), (Start: 8 @55329 has 5 MA's), (Start: 13 @55269 has 46 MA's), (Start: 19 @55188 has 206 MA's), (28, 55122), (29, 55101), (34, 55056), (39, 55017), (44, 54891), (45, 54885), (48, 54840),

Gene: Dice\_63 Start: 55072, Stop: 54716, Start Num: 19

Candidate Starts for Dice\_63:

(4, 55360), (Start: 8 @55213 has 5 MA's), (Start: 13 @55153 has 46 MA's), (Start: 19 @55072 has 206 MA's), (28, 55006), (29, 54985), (39, 54901), (44, 54775), (45, 54769), (48, 54724),

Gene: DigitDog\_64 Start: 56730, Stop: 56395, Start Num: 18

Candidate Starts for DigitDog\_64:

(18, 56730), (22, 56706), (23, 56703), (24, 56697), (25, 56688), (42, 56544), (46, 56454), (49, 56424), (51, 56406),

Gene: Dingo\_62 Start: 54631, Stop: 54275, Start Num: 19

Candidate Starts for Dingo\_62:

(4, 54919), (Start: 8 @54772 has 5 MA's), (Start: 13 @54712 has 46 MA's), (Start: 19 @54631 has 206 MA's), (28, 54565), (29, 54544), (39, 54460), (44, 54334), (45, 54328), (48, 54283),

Gene: Dione\_62 Start: 54803, Stop: 54447, Start Num: 19

Candidate Starts for Dione\_62:

(4, 55091), (Start: 8 @54944 has 5 MA's), (Start: 13 @54884 has 46 MA's), (Start: 19 @54803 has 206 MA's), (28, 54737), (29, 54716), (39, 54632), (44, 54506), (45, 54500), (48, 54455),

Gene: DirtJuice\_65 Start: 55393, Stop: 55037, Start Num: 19

Candidate Starts for DirtJuice\_65:

(4, 55681), (Start: 8 @55534 has 5 MA's), (Start: 13 @55474 has 46 MA's), (Start: 19 @55393 has 206 MA's), (28, 55327), (29, 55306), (39, 55222), (44, 55096), (45, 55090), (48, 55045),

Gene: Doddsville\_63 Start: 55232, Stop: 54819, Start Num: 13

Candidate Starts for Doddsville\_63:

(4, 55439), (Start: 8 @55292 has 5 MA's), (Start: 13 @55232 has 46 MA's), (Start: 19 @55151 has 206 MA's), (28, 55085), (29, 55064), (35, 55001), (39, 54980), (44, 54854), (45, 54848),

Gene: DoesntMatter\_61 Start: 55177, Stop: 54740, Start Num: 13

Candidate Starts for DoesntMatter\_61:

(4, 55384), (Start: 8 @55237 has 5 MA's), (Start: 13 @55177 has 46 MA's), (Start: 19 @55096 has 206 MA's), (28, 55030), (29, 55009), (39, 54925), (44, 54799), (45, 54793), (48, 54748),

Gene: DonSanchon\_61 Start: 54786, Stop: 54430, Start Num: 19

Candidate Starts for DonSanchon\_61:

(4, 55074), (Start: 8 @54927 has 5 MA's), (Start: 13 @54867 has 46 MA's), (Start: 19 @54786 has 206 MA's), (28, 54720), (29, 54699), (39, 54615), (44, 54489), (45, 54483), (48, 54438),

Gene: Donny\_65 Start: 56722, Stop: 56381, Start Num: 16

Candidate Starts for Donny\_65:

(Start: 16 @56722 has 6 MA's), (22, 56695), (25, 56677), (30, 56611), (37, 56578), (42, 56530), (46, 56440), (49, 56410), (51, 56392),

Gene: DuchessDung\_64 Start: 54669, Stop: 54337, Start Num: 19

Candidate Starts for DuchessDung\_64:

(4, 54957), (Start: 8 @54810 has 5 MA's), (Start: 13 @54750 has 46 MA's), (Start: 19 @54669 has 206 MA's), (28, 54603), (29, 54582), (35, 54519), (39, 54498), (44, 54372), (45, 54366),

Gene: Duggie\_64 Start: 55347, Stop: 54991, Start Num: 19

Candidate Starts for Duggie\_64:

(4, 55635), (Start: 8 @55488 has 5 MA's), (11, 55470), (Start: 13 @55428 has 46 MA's), (Start: 19 @55347 has 206 MA's), (28, 55281), (29, 55260), (39, 55176), (44, 55050), (45, 55044), (48, 54999),

Gene: Durga\_67 Start: 55836, Stop: 55480, Start Num: 19

Candidate Starts for Durga\_67:

(4, 56124), (Start: 8 @55977 has 5 MA's), (11, 55959), (Start: 13 @55917 has 46 MA's), (Start: 19 @55836 has 206 MA's), (28, 55770), (29, 55749), (39, 55665), (44, 55539), (45, 55533), (48, 55488),

Gene: EastView9101\_63 Start: 56420, Stop: 56079, Start Num: 16

Candidate Starts for EastView9101\_63:

(Start: 16 @56420 has 6 MA's), (22, 56393), (25, 56375), (30, 56309), (37, 56276), (42, 56228), (46, 56138), (49, 56108), (51, 56090),

Gene: Emiris\_66 Start: 55803, Stop: 55447, Start Num: 19

Candidate Starts for Emiris\_66:

(4, 56091), (Start: 8 @55944 has 5 MA's), (Start: 13 @55884 has 46 MA's), (Start: 19 @55803 has 206 MA's), (28, 55737), (29, 55716), (39, 55632), (44, 55506), (45, 55500), (48, 55455),

Gene: EmpTee\_63 Start: 55453, Stop: 54956, Start Num: 8

Candidate Starts for EmpTee\_63:

(4, 55600), (Start: 8 @55453 has 5 MA's), (Start: 13 @55393 has 46 MA's), (Start: 19 @55312 has 206 MA's), (28, 55246), (29, 55225), (35, 55162), (39, 55141), (44, 55015), (45, 55009), (48, 54964),

Gene: Eremos\_63 Start: 55383, Stop: 54946, Start Num: 13

Candidate Starts for Eremos\_63:

(4, 55590), (Start: 8 @55443 has 5 MA's), (Start: 13 @55383 has 46 MA's), (Start: 19 @55302 has 206 MA's), (28, 55236), (29, 55215), (39, 55131), (44, 55005), (45, 54999), (48, 54954),

Gene: Etaye\_64 Start: 55945, Stop: 55613, Start Num: 19

Candidate Starts for Etaye\_64:

(4, 56233), (Start: 8 @56086 has 5 MA's), (Start: 13 @56026 has 46 MA's), (Start: 19 @55945 has 206 MA's), (28, 55879), (29, 55858), (35, 55795), (39, 55774), (44, 55648), (45, 55642),

Gene: Eugenia\_64 Start: 55455, Stop: 55099, Start Num: 19

Candidate Starts for Eugenia\_64:

(4, 55743), (Start: 8 @55596 has 5 MA's), (Start: 13 @55536 has 46 MA's), (Start: 19 @55455 has 206 MA's), (28, 55389), (29, 55368), (39, 55284), (44, 55158), (45, 55152), (48, 55107),

Gene: Fang\_65 Start: 55348, Stop: 54992, Start Num: 19

Candidate Starts for Fang\_65:

(4, 55636), (Start: 8 @55489 has 5 MA's), (Start: 13 @55429 has 46 MA's), (Start: 19 @55348 has 206 MA's), (28, 55282), (29, 55261), (39, 55177), (44, 55051), (45, 55045), (48, 55000),

Gene: FluffyNinja\_65 Start: 55368, Stop: 55012, Start Num: 19

Candidate Starts for FluffyNinja\_65:

(4, 55656), (Start: 8 @55509 has 5 MA's), (Start: 13 @55449 has 46 MA's), (Start: 19 @55368 has 206 MA's), (28, 55302), (39, 55197), (44, 55071), (45, 55065), (48, 55020),

Gene: Fozzie\_64 Start: 55594, Stop: 55238, Start Num: 19

Candidate Starts for Fozzie\_64:

(4, 55882), (Start: 8 @55735 has 5 MA's), (Start: 13 @55675 has 46 MA's), (Start: 19 @55594 has 206 MA's), (28, 55528), (29, 55507), (39, 55423), (44, 55297), (45, 55291), (48, 55246),

Gene: Frankicide\_62 Start: 55134, Stop: 54778, Start Num: 19

Candidate Starts for Frankicide\_62:

(4, 55422), (Start: 8 @55275 has 5 MA's), (Start: 13 @55215 has 46 MA's), (Start: 19 @55134 has 206 MA's), (28, 55068), (29, 55047), (39, 54963), (44, 54837), (45, 54831), (48, 54786),

Gene: Freya\_61 Start: 54794, Stop: 54438, Start Num: 19

Candidate Starts for Freya\_61:

(4, 55082), (Start: 8 @54935 has 5 MA's), (Start: 13 @54875 has 46 MA's), (Start: 19 @54794 has 206 MA's), (28, 54728), (29, 54707), (39, 54623), (44, 54497), (45, 54491), (48, 54446),

Gene: FriarPreacher\_63 Start: 55268, Stop: 54831, Start Num: 13

Candidate Starts for FriarPreacher\_63:

(4, 55475), (Start: 8 @55328 has 5 MA's), (Start: 13 @55268 has 46 MA's), (Start: 19 @55187 has 206 MA's), (28, 55121), (29, 55100), (39, 55016), (44, 54890), (45, 54884), (48, 54839),

Gene: Fringe\_68 Start: 56051, Stop: 55614, Start Num: 13

Candidate Starts for Fringe\_68:

(4, 56258), (Start: 8 @56111 has 5 MA's), (Start: 13 @56051 has 46 MA's), (Start: 19 @55970 has 206 MA's), (28, 55904), (29, 55883), (34, 55838), (39, 55799), (44, 55673), (45, 55667), (48, 55622),

Gene: FugateOSU\_65 Start: 56139, Stop: 55783, Start Num: 19

Candidate Starts for FugateOSU\_65:

(4, 56427), (Start: 8 @56280 has 5 MA's), (Start: 13 @56220 has 46 MA's), (Start: 19 @56139 has 206 MA's), (28, 56073), (29, 56052), (39, 55968), (44, 55842), (45, 55836), (48, 55791),

Gene: Funsized\_64 Start: 58606, Stop: 58226, Start Num: 15

Candidate Starts for Funsized\_64:

(5, 58819), (6, 58771), (10, 58690), (Start: 15 @58606 has 1 MA's), (21, 58558), (26, 58513), (32, 58456), (33, 58444), (37, 58423), (43, 58354), (44, 58306), (46, 58276), (47, 58273),

Gene: Gareth\_64 Start: 55673, Stop: 55236, Start Num: 13

Candidate Starts for Gareth\_64:

(4, 55880), (Start: 8 @55733 has 5 MA's), (Start: 13 @55673 has 46 MA's), (Start: 19 @55592 has 206 MA's), (28, 55526), (29, 55505), (39, 55421), (44, 55295), (45, 55289), (48, 55244),

Gene: GeneCoco\_65 Start: 55636, Stop: 55280, Start Num: 19

Candidate Starts for GeneCoco\_65:

(4, 55924), (Start: 8 @55777 has 5 MA's), (Start: 13 @55717 has 46 MA's), (Start: 19 @55636 has 206 MA's), (28, 55570), (29, 55549), (34, 55504), (39, 55465), (44, 55339), (45, 55333), (48, 55288),

Gene: Giraffe\_64 Start: 55668, Stop: 55231, Start Num: 13

Candidate Starts for Giraffe\_64:

(4, 55875), (Start: 8 @55728 has 5 MA's), (Start: 13 @55668 has 46 MA's), (Start: 19 @55587 has 206 MA's), (28, 55521), (29, 55500), (39, 55416), (44, 55290), (45, 55284), (48, 55239),

Gene: Gophee\_65 Start: 55578, Stop: 55222, Start Num: 19

Candidate Starts for Gophee\_65:

(4, 55866), (Start: 8 @55719 has 5 MA's), (Start: 13 @55659 has 46 MA's), (Start: 19 @55578 has 206 MA's), (28, 55512), (29, 55491), (39, 55407), (44, 55281), (45, 55275), (48, 55230),

Gene: Grand2040\_63 Start: 55581, Stop: 55225, Start Num: 19

Candidate Starts for Grand2040\_63:

(4, 55869), (Start: 8 @55722 has 5 MA's), (Start: 13 @55662 has 46 MA's), (Start: 19 @55581 has 206 MA's), (28, 55515), (29, 55494), (39, 55410), (44, 55284), (45, 55278), (48, 55233),

Gene: Gwilliam\_66 Start: 55986, Stop: 55630, Start Num: 19

Candidate Starts for Gwilliam\_66:

(4, 56274), (Start: 8 @56127 has 5 MA's), (Start: 13 @56067 has 46 MA's), (Start: 19 @55986 has 206 MA's), (28, 55920), (29, 55899), (34, 55854), (39, 55815), (44, 55689), (45, 55683), (48, 55638),

Gene: Gyarad\_0063 Start: 54749, Stop: 54312, Start Num: 13

Candidate Starts for Gyarad\_0063:

(4, 54956), (Start: 8 @54809 has 5 MA's), (Start: 13 @54749 has 46 MA's), (Start: 19 @54668 has 206 MA's), (28, 54602), (29, 54581), (34, 54536), (39, 54497), (44, 54371), (45, 54365), (48, 54320),

Gene: HSavage\_62 Start: 55193, Stop: 54756, Start Num: 13

Candidate Starts for HSavage\_62:

(4, 55400), (Start: 8 @55253 has 5 MA's), (Start: 13 @55193 has 46 MA's), (Start: 19 @55112 has 206 MA's), (28, 55046), (29, 55025), (39, 54941), (44, 54815), (45, 54809), (48, 54764),

Gene: Haimas\_63 Start: 55029, Stop: 54673, Start Num: 19

Candidate Starts for Haimas\_63:

(4, 55317), (Start: 8 @55170 has 5 MA's), (Start: 13 @55110 has 46 MA's), (Start: 19 @55029 has 206 MA's), (28, 54963), (29, 54942), (39, 54858), (44, 54732), (45, 54726), (48, 54681),

Gene: Haleema\_63 Start: 55214, Stop: 54777, Start Num: 13

Candidate Starts for Haleema\_63:

(4, 55421), (Start: 8 @55274 has 5 MA's), (Start: 13 @55214 has 46 MA's), (Start: 19 @55133 has 206 MA's), (28, 55067), (29, 55046), (39, 54962), (44, 54836), (45, 54830), (48, 54785),

Gene: Hamish\_62 Start: 55023, Stop: 54667, Start Num: 19

Candidate Starts for Hamish\_62:

(4, 55311), (Start: 8 @55164 has 5 MA's), (Start: 13 @55104 has 46 MA's), (Start: 19 @55023 has 206 MA's), (28, 54957), (29, 54936), (39, 54852), (44, 54726), (45, 54720), (48, 54675),

Gene: Hartsy\_63 Start: 55273, Stop: 54941, Start Num: 19

Candidate Starts for Hartsy\_63:

(4, 55561), (Start: 8 @55414 has 5 MA's), (Start: 13 @55354 has 46 MA's), (Start: 19 @55273 has 206 MA's), (28, 55207), (29, 55186), (35, 55123), (39, 55102), (44, 54976), (45, 54970),

Gene: Harvey\_62 Start: 55116, Stop: 54760, Start Num: 19

Candidate Starts for Harvey\_62:

(4, 55404), (Start: 8 @55257 has 5 MA's), (Start: 13 @55197 has 46 MA's), (Start: 19 @55116 has 206 MA's), (28, 55050), (29, 55029), (39, 54945), (44, 54819), (45, 54813), (48, 54768),

Gene: Held\_63 Start: 55171, Stop: 54734, Start Num: 13

Candidate Starts for Held\_63:

(4, 55378), (Start: 8 @55231 has 5 MA's), (Start: 13 @55171 has 46 MA's), (Start: 19 @55090 has 206 MA's), (28, 55024), (29, 55003), (39, 54919), (44, 54793), (45, 54787), (48, 54742),

Gene: HenryJackson\_64 Start: 55616, Stop: 55260, Start Num: 19

Candidate Starts for HenryJackson\_64:

(4, 55904), (Start: 8 @55757 has 5 MA's), (Start: 13 @55697 has 46 MA's), (Start: 19 @55616 has 206 MA's), (28, 55550), (29, 55529), (39, 55445), (44, 55319), (45, 55313), (48, 55268),

Gene: Hertubise\_63 Start: 55463, Stop: 55026, Start Num: 13

Candidate Starts for Hertubise\_63:

(4, 55670), (Start: 8 @55523 has 5 MA's), (Start: 13 @55463 has 46 MA's), (Start: 19 @55382 has 206 MA's), (28, 55316), (29, 55295), (39, 55211), (44, 55085), (45, 55079), (48, 55034),

Gene: Hetaeria\_63 Start: 55321, Stop: 54965, Start Num: 20

Candidate Starts for Hetaeria\_63:

(14, 55378), (Start: 20 @55321 has 4 MA's), (28, 55255), (29, 55234), (39, 55150), (44, 55024), (45, 55018), (48, 54973),

Gene: HighStump\_66 Start: 55593, Stop: 55237, Start Num: 19

Candidate Starts for HighStump\_66:



(4, 55881), (Start: 8 @55734 has 5 MA's), (Start: 13 @55674 has 46 MA's), (Start: 19 @55593 has 206 MA's), (28, 55527), (29, 55506), (39, 55422), (44, 55296), (45, 55290), (48, 55245),

Gene: Hocus\_63 Start: 55077, Stop: 54721, Start Num: 19

Candidate Starts for Hocus\_63:

(4, 55365), (Start: 8 @55218 has 5 MA's), (Start: 13 @55158 has 46 MA's), (Start: 19 @55077 has 206 MA's), (28, 55011), (29, 54990), (39, 54906), (44, 54780), (45, 54774), (48, 54729),

Gene: Horchata\_62 Start: 55112, Stop: 54756, Start Num: 19

Candidate Starts for Horchata\_62:

(4, 55400), (Start: 8 @55253 has 5 MA's), (Start: 13 @55193 has 46 MA's), (Start: 19 @55112 has 206 MA's), (28, 55046), (29, 55025), (39, 54941), (44, 54815), (45, 54809), (48, 54764),

Gene: ImtiyazSitla\_65 Start: 55320, Stop: 54964, Start Num: 19

Candidate Starts for ImtiyazSitla\_65:

(4, 55608), (Start: 8 @55461 has 5 MA's), (Start: 13 @55401 has 46 MA's), (Start: 19 @55320 has 206 MA's), (28, 55254), (29, 55233), (34, 55188), (35, 55170), (39, 55149), (44, 55023), (45, 55017), (48, 54972),

Gene: Inchworm\_66 Start: 55471, Stop: 55115, Start Num: 19

Candidate Starts for Inchworm\_66:

(4, 55759), (Start: 8 @55612 has 5 MA's), (Start: 13 @55552 has 46 MA's), (Start: 19 @55471 has 206 MA's), (28, 55405), (29, 55384), (34, 55339), (35, 55321), (39, 55300), (44, 55174), (45, 55168), (48, 55123),

Gene: Inverness\_63 Start: 55120, Stop: 54764, Start Num: 19

Candidate Starts for Inverness\_63:

(4, 55408), (Start: 8 @55261 has 5 MA's), (Start: 13 @55201 has 46 MA's), (Start: 19 @55120 has 206 MA's), (28, 55054), (29, 55033), (35, 54970), (39, 54949), (44, 54823), (45, 54817), (48, 54772),

Gene: Iridoclysis\_64 Start: 55404, Stop: 55048, Start Num: 19

Candidate Starts for Iridoclysis\_64:

(4, 55692), (Start: 8 @55545 has 5 MA's), (Start: 13 @55485 has 46 MA's), (Start: 19 @55404 has 206 MA's), (28, 55338), (29, 55317), (39, 55233), (44, 55107), (45, 55101), (48, 55056),

Gene: IsaacEli\_65 Start: 55603, Stop: 55247, Start Num: 20

Candidate Starts for IsaacEli\_65:

(14, 55660), (Start: 20 @55603 has 4 MA's), (28, 55537), (29, 55516), (39, 55432), (44, 55306), (45, 55300), (48, 55255),

Gene: JDog\_63 Start: 55626, Stop: 55270, Start Num: 19

Candidate Starts for JDog\_63:

(4, 55914), (Start: 8 @55767 has 5 MA's), (Start: 13 @55707 has 46 MA's), (Start: 19 @55626 has 206 MA's), (28, 55560), (29, 55539), (39, 55455), (44, 55329), (45, 55323), (48, 55278),

Gene: JacAttac\_65 Start: 55147, Stop: 54710, Start Num: 13

Candidate Starts for JacAttac\_65:

(4, 55354), (Start: 8 @55207 has 5 MA's), (Start: 13 @55147 has 46 MA's), (Start: 19 @55066 has 206 MA's), (28, 55000), (29, 54979), (39, 54895), (44, 54769), (45, 54763), (48, 54718),

Gene: JakeO\_65 Start: 55349, Stop: 54993, Start Num: 19

Candidate Starts for JakeO\_65:

(4, 55637), (Start: 8 @55490 has 5 MA's), (11, 55472), (Start: 13 @55430 has 46 MA's), (Start: 19 @55349 has 206 MA's), (28, 55283), (29, 55262), (39, 55178), (44, 55052), (45, 55046), (48, 55001),

Gene: JangoPhett\_64 Start: 55407, Stop: 55051, Start Num: 19

Candidate Starts for JangoPhett\_64:

(4, 55695), (Start: 8 @55548 has 5 MA's), (Start: 13 @55488 has 46 MA's), (Start: 19 @55407 has 206 MA's), (28, 55341), (29, 55320), (39, 55236), (44, 55110), (45, 55104), (48, 55059),

Gene: Jillium\_64 Start: 55611, Stop: 55255, Start Num: 19

Candidate Starts for Jillium\_64:

(4, 55899), (Start: 8 @55752 has 5 MA's), (Start: 13 @55692 has 46 MA's), (Start: 19 @55611 has 206 MA's), (28, 55545), (29, 55524), (39, 55440), (44, 55314), (45, 55308), (48, 55263),

Gene: Jiminy\_65 Start: 55185, Stop: 54829, Start Num: 19

Candidate Starts for Jiminy\_65:

(4, 55473), (Start: 8 @55326 has 5 MA's), (11, 55308), (Start: 13 @55266 has 46 MA's), (Start: 19 @55185 has 206 MA's), (28, 55119), (29, 55098), (39, 55014), (44, 54888), (45, 54882), (48, 54837),

Gene: Jiraiya\_68 Start: 55383, Stop: 55027, Start Num: 19

Candidate Starts for Jiraiya\_68:

(4, 55671), (Start: 8 @55524 has 5 MA's), (Start: 13 @55464 has 46 MA's), (Start: 19 @55383 has 206 MA's), (28, 55317), (29, 55296), (39, 55212), (44, 55086), (45, 55080), (48, 55035),

Gene: KLucky39\_62 Start: 54667, Stop: 54311, Start Num: 19

Candidate Starts for KLucky39\_62:

(4, 54955), (Start: 8 @54808 has 5 MA's), (Start: 13 @54748 has 46 MA's), (Start: 19 @54667 has 206 MA's), (28, 54601), (29, 54580), (39, 54496), (44, 54370), (45, 54364), (48, 54319),

Gene: Kahve\_64 Start: 55613, Stop: 55257, Start Num: 19

Candidate Starts for Kahve\_64:

(4, 55901), (Start: 8 @55754 has 5 MA's), (Start: 13 @55694 has 46 MA's), (Start: 19 @55613 has 206 MA's), (28, 55547), (29, 55526), (39, 55442), (44, 55316), (45, 55310), (48, 55265),

Gene: Kailash\_63 Start: 55592, Stop: 55179, Start Num: 13

Candidate Starts for Kailash\_63:

(4, 55799), (Start: 8 @55652 has 5 MA's), (Start: 13 @55592 has 46 MA's), (Start: 19 @55511 has 206 MA's), (28, 55445), (29, 55424), (35, 55361), (39, 55340), (44, 55214), (45, 55208),

Gene: KarasumaRum\_63 Start: 56576, Stop: 56241, Start Num: 18

Candidate Starts for KarasumaRum\_63:

(18, 56576), (22, 56552), (23, 56549), (24, 56543), (25, 56534), (42, 56390), (46, 56300), (49, 56270), (51, 56252),

Gene: Katniss\_65 Start: 55051, Stop: 54695, Start Num: 19

Candidate Starts for Katniss\_65:

(4, 55339), (Start: 8 @55192 has 5 MA's), (Start: 13 @55132 has 46 MA's), (Start: 19 @55051 has 206 MA's), (28, 54985), (29, 54964), (39, 54880), (44, 54754), (45, 54748), (48, 54703),

Gene: Keitherie\_66 Start: 55674, Stop: 55318, Start Num: 19

Candidate Starts for Keitherie\_66:

(4, 55962), (Start: 8 @55815 has 5 MA's), (Start: 13 @55755 has 46 MA's), (Start: 19 @55674 has 206 MA's), (28, 55608), (29, 55587), (39, 55503), (44, 55377), (45, 55371), (48, 55326),

Gene: Kikipoo\_65 Start: 55603, Stop: 55247, Start Num: 20

Candidate Starts for Kikipoo\_65:

(14, 55660), (Start: 20 @55603 has 4 MA's), (28, 55537), (29, 55516), (39, 55432), (44, 55306), (45, 55300), (48, 55255),

Gene: Kimbrough\_65 Start: 55654, Stop: 55298, Start Num: 19

Candidate Starts for Kimbrough\_65:

(4, 55942), (Start: 8 @55795 has 5 MA's), (Start: 13 @55735 has 46 MA's), (Start: 19 @55654 has 206 MA's), (28, 55588), (29, 55567), (35, 55504), (39, 55483), (44, 55357), (45, 55351), (48, 55306),

Gene: KingTut\_56 Start: 51818, Stop: 51462, Start Num: 19

Candidate Starts for KingTut\_56:

(4, 52106), (Start: 8 @51959 has 5 MA's), (Start: 13 @51899 has 46 MA's), (Start: 19 @51818 has 206 MA's), (28, 51752), (29, 51731), (39, 51647), (44, 51521), (45, 51515), (48, 51470),

Gene: KingVeVeVe\_63 Start: 54702, Stop: 54265, Start Num: 13

Candidate Starts for KingVeVeVe\_63:

(4, 54909), (Start: 8 @54762 has 5 MA's), (Start: 13 @54702 has 46 MA's), (Start: 19 @54621 has 206 MA's), (28, 54555), (29, 54534), (35, 54471), (39, 54450), (44, 54324), (45, 54318), (48, 54273),

Gene: KlimbOn\_64 Start: 55112, Stop: 54756, Start Num: 19

Candidate Starts for KlimbOn\_64:

(4, 55400), (Start: 8 @55253 has 5 MA's), (Start: 13 @55193 has 46 MA's), (Start: 19 @55112 has 206 MA's), (28, 55046), (29, 55025), (39, 54941), (44, 54815), (45, 54809), (48, 54764),

Gene: Kloppinator\_65 Start: 55263, Stop: 54907, Start Num: 19

Candidate Starts for Kloppinator\_65:

(4, 55551), (Start: 8 @55404 has 5 MA's), (Start: 13 @55344 has 46 MA's), (Start: 19 @55263 has 206 MA's), (28, 55197), (29, 55176), (39, 55092), (44, 54966), (45, 54960), (48, 54915),

Gene: Kwadwo\_63 Start: 55064, Stop: 54708, Start Num: 19

Candidate Starts for Kwadwo\_63:

(4, 55352), (Start: 8 @55205 has 5 MA's), (Start: 13 @55145 has 46 MA's), (Start: 19 @55064 has 206 MA's), (28, 54998), (29, 54977), (39, 54893), (44, 54767), (45, 54761), (48, 54716),

Gene: Kwksand96\_65 Start: 55341, Stop: 54844, Start Num: 8

Candidate Starts for Kwksand96\_65:

(4, 55488), (Start: 8 @55341 has 5 MA's), (Start: 13 @55281 has 46 MA's), (Start: 19 @55200 has 206 MA's), (28, 55134), (29, 55113), (39, 55029), (44, 54903), (45, 54897), (48, 54852),

Gene: Labeouficaum\_65 Start: 55188, Stop: 54832, Start Num: 19

Candidate Starts for Labeouficaum\_65:

(4, 55476), (Start: 8 @55329 has 5 MA's), (Start: 13 @55269 has 46 MA's), (Start: 19 @55188 has 206 MA's), (28, 55122), (29, 55101), (34, 55056), (39, 55017), (44, 54891), (45, 54885), (48, 54840),

Gene: LasagnaCat\_66 Start: 55483, Stop: 55127, Start Num: 19

Candidate Starts for LasagnaCat\_66:

(4, 55771), (Start: 8 @55624 has 5 MA's), (Start: 13 @55564 has 46 MA's), (Start: 19 @55483 has 206 MA's), (28, 55417), (29, 55396), (34, 55351), (35, 55333), (39, 55312), (44, 55186), (45, 55180), (48, 55135),

Gene: Lasso\_64 Start: 55339, Stop: 54983, Start Num: 19

Candidate Starts for Lasso\_64:

(4, 55627), (Start: 8 @55480 has 5 MA's), (Start: 13 @55420 has 46 MA's), (Start: 19 @55339 has 206 MA's), (28, 55273), (29, 55252), (39, 55168), (44, 55042), (45, 55036), (48, 54991),

Gene: LeeLot\_64 Start: 55775, Stop: 55338, Start Num: 13

Candidate Starts for LeeLot\_64:

(4, 55982), (Start: 8 @55835 has 5 MA's), (Start: 13 @55775 has 46 MA's), (Start: 19 @55694 has 206 MA's), (28, 55628), (29, 55607), (39, 55523), (44, 55397), (45, 55391), (48, 55346),

Gene: Lego3393\_62 Start: 55726, Stop: 55289, Start Num: 13

Candidate Starts for Lego3393\_62:

(4, 55933), (Start: 8 @55786 has 5 MA's), (Start: 13 @55726 has 46 MA's), (Start: 19 @55645 has 206 MA's), (28, 55579), (29, 55558), (35, 55495), (39, 55474), (44, 55348), (45, 55342), (48, 55297),

Gene: Legolas\_66 Start: 55433, Stop: 55077, Start Num: 19

Candidate Starts for Legolas\_66:

(4, 55721), (Start: 8 @55574 has 5 MA's), (Start: 13 @55514 has 46 MA's), (Start: 19 @55433 has 206 MA's), (28, 55367), (29, 55346), (39, 55262), (44, 55136), (45, 55130), (48, 55085),

Gene: LeiMonet\_67 Start: 55557, Stop: 55201, Start Num: 19

Candidate Starts for LeiMonet\_67:

(4, 55845), (Start: 8 @55698 has 5 MA's), (Start: 13 @55638 has 46 MA's), (Start: 19 @55557 has 206 MA's), (28, 55491), (29, 55470), (39, 55386), (44, 55260), (45, 55254), (48, 55209),

Gene: LemonSlice\_65 Start: 55024, Stop: 54668, Start Num: 19

Candidate Starts for LemonSlice\_65:

(4, 55312), (Start: 8 @55165 has 5 MA's), (Start: 13 @55105 has 46 MA's), (Start: 19 @55024 has 206 MA's), (28, 54958), (29, 54937), (39, 54853), (44, 54727), (45, 54721), (48, 54676),

Gene: Longacauda\_65 Start: 55460, Stop: 55104, Start Num: 19

Candidate Starts for Longacauda\_65:

(4, 55748), (Start: 8 @55601 has 5 MA's), (Start: 13 @55541 has 46 MA's), (Start: 19 @55460 has 206 MA's), (28, 55394), (29, 55373), (39, 55289), (44, 55163), (45, 55157), (48, 55112),

Gene: Lopsy\_62 Start: 54752, Stop: 54396, Start Num: 19

Candidate Starts for Lopsy\_62:

(4, 55040), (Start: 8 @54893 has 5 MA's), (Start: 13 @54833 has 46 MA's), (Start: 19 @54752 has 206 MA's), (28, 54686), (29, 54665), (39, 54581), (44, 54455), (45, 54449), (48, 54404),

Gene: LostAndPhound\_64 Start: 55638, Stop: 55282, Start Num: 19

Candidate Starts for LostAndPhound\_64:

(4, 55926), (Start: 8 @55779 has 5 MA's), (Start: 13 @55719 has 46 MA's), (Start: 19 @55638 has 206 MA's), (28, 55572), (29, 55551), (39, 55467), (44, 55341), (45, 55335), (48, 55290),

Gene: LuckyMarjie\_62 Start: 54814, Stop: 54458, Start Num: 19

Candidate Starts for LuckyMarjie\_62:

(4, 55102), (Start: 8 @54955 has 5 MA's), (Start: 13 @54895 has 46 MA's), (Start: 19 @54814 has 206 MA's), (28, 54748), (29, 54727), (39, 54643), (44, 54517), (45, 54511), (48, 54466),

Gene: Lulumae\_61 Start: 54880, Stop: 54443, Start Num: 13

Candidate Starts for Lulumae\_61:

(4, 55087), (Start: 8 @54940 has 5 MA's), (Start: 13 @54880 has 46 MA's), (Start: 19 @54799 has 206 MA's), (28, 54733), (29, 54712), (39, 54628), (44, 54502), (45, 54496), (48, 54451),

Gene: Lulwa\_62 Start: 54396, Stop: 54040, Start Num: 19

Candidate Starts for Lulwa\_62:

(4, 54684), (Start: 8 @54537 has 5 MA's), (Start: 13 @54477 has 46 MA's), (Start: 19 @54396 has 206 MA's), (28, 54330), (29, 54309), (39, 54225), (44, 54099), (45, 54093), (48, 54048),

Gene: Lumine\_65 Start: 55283, Stop: 54927, Start Num: 19

Candidate Starts for Lumine\_65:

(4, 55571), (Start: 8 @55424 has 5 MA's), (Start: 13 @55364 has 46 MA's), (Start: 19 @55283 has 206 MA's), (28, 55217), (29, 55196), (39, 55112), (44, 54986), (45, 54980), (48, 54935),

Gene: MRabcd\_64 Start: 55407, Stop: 55051, Start Num: 19

Candidate Starts for MRabcd\_64:

(4, 55695), (Start: 8 @55548 has 5 MA's), (Start: 13 @55488 has 46 MA's), (Start: 19 @55407 has 206 MA's), (28, 55341), (29, 55320), (39, 55236), (44, 55110), (45, 55104), (48, 55059),

Gene: Mag7\_63 Start: 55055, Stop: 54723, Start Num: 19

Candidate Starts for Mag7\_63:

(4, 55343), (Start: 8 @55196 has 5 MA's), (Start: 13 @55136 has 46 MA's), (Start: 19 @55055 has 206 MA's), (28, 54989), (29, 54968), (35, 54905), (39, 54884), (44, 54758), (45, 54752),

Gene: Magic8\_65 Start: 55402, Stop: 55046, Start Num: 19

Candidate Starts for Magic8\_65:

(4, 55690), (Start: 8 @55543 has 5 MA's), (Start: 13 @55483 has 46 MA's), (Start: 19 @55402 has 206 MA's), (28, 55336), (29, 55315), (34, 55270), (35, 55252), (39, 55231), (44, 55105), (45, 55099), (48, 55054),

Gene: Mana\_63 Start: 55079, Stop: 54723, Start Num: 19

Candidate Starts for Mana\_63:

(4, 55367), (Start: 8 @55220 has 5 MA's), (Start: 13 @55160 has 46 MA's), (Start: 19 @55079 has 206 MA's), (28, 55013), (29, 54992), (39, 54908), (44, 54782), (45, 54776), (48, 54731),

Gene: Manad\_63 Start: 55363, Stop: 55007, Start Num: 19

Candidate Starts for Manad\_63:

(14, 55420), (Start: 19 @55363 has 206 MA's), (28, 55297), (29, 55276), (35, 55213), (39, 55192), (44, 55066), (45, 55060), (48, 55015),

Gene: Maru\_64 Start: 55519, Stop: 55163, Start Num: 19

Candidate Starts for Maru\_64:

(4, 55807), (Start: 8 @55660 has 5 MA's), (Start: 13 @55600 has 46 MA's), (Start: 19 @55519 has 206 MA's), (28, 55453), (29, 55432), (39, 55348), (44, 55222), (45, 55216), (48, 55171),

Gene: Maskar\_65 Start: 55320, Stop: 54964, Start Num: 19

Candidate Starts for Maskar\_65:

(4, 55608), (Start: 8 @55461 has 5 MA's), (Start: 13 @55401 has 46 MA's), (Start: 19 @55320 has 206 MA's), (28, 55254), (29, 55233), (34, 55188), (35, 55170), (39, 55149), (44, 55023), (45, 55017), (48, 54972),

Gene: Matalotodo\_63 Start: 55631, Stop: 55275, Start Num: 19

Candidate Starts for Matalotodo\_63:

(4, 55919), (Start: 8 @55772 has 5 MA's), (Start: 13 @55712 has 46 MA's), (Start: 19 @55631 has 206 MA's), (28, 55565), (29, 55544), (39, 55460), (44, 55334), (45, 55328), (48, 55283),

Gene: Mcshane\_63 Start: 55077, Stop: 54721, Start Num: 19

Candidate Starts for Mcshane\_63:

(4, 55365), (Start: 8 @55218 has 5 MA's), (Start: 13 @55158 has 46 MA's), (Start: 19 @55077 has 206 MA's), (28, 55011), (29, 54990), (39, 54906), (44, 54780), (45, 54774), (48, 54729),

Gene: Mecca\_64 Start: 55642, Stop: 55286, Start Num: 19

Candidate Starts for Mecca\_64:

(4, 55930), (Start: 8 @55783 has 5 MA's), (Start: 13 @55723 has 46 MA's), (Start: 19 @55642 has 206 MA's), (28, 55576), (29, 55555), (39, 55471), (44, 55345), (45, 55339), (48, 55294),

Gene: Megamind20\_65 Start: 55065, Stop: 54709, Start Num: 19

Candidate Starts for Megamind20\_65:

(4, 55353), (Start: 8 @55206 has 5 MA's), (Start: 13 @55146 has 46 MA's), (Start: 19 @55065 has 206 MA's), (28, 54999), (29, 54978), (39, 54894), (44, 54768), (45, 54762), (48, 54717),

Gene: Megatron\_64 Start: 55673, Stop: 55236, Start Num: 13

Candidate Starts for Megatron\_64:

(4, 55880), (Start: 8 @55733 has 5 MA's), (Start: 13 @55673 has 46 MA's), (Start: 19 @55592 has 206 MA's), (28, 55526), (29, 55505), (39, 55421), (44, 55295), (45, 55289), (48, 55244),

Gene: Melc17\_62 Start: 55720, Stop: 55388, Start Num: 19

Candidate Starts for Melc17\_62:

(4, 56008), (Start: 8 @55861 has 5 MA's), (Start: 13 @55801 has 46 MA's), (Start: 19 @55720 has 206 MA's), (28, 55654), (29, 55633), (31, 55621), (35, 55570), (39, 55549), (44, 55423), (45, 55417),

Gene: MelsMeow\_64 Start: 55373, Stop: 55017, Start Num: 19

Candidate Starts for MelsMeow\_64:

(4, 55661), (Start: 8 @55514 has 5 MA's), (12, 55493), (Start: 13 @55454 has 46 MA's), (Start: 19 @55373 has 206 MA's), (28, 55307), (29, 55286), (39, 55202), (44, 55076), (45, 55070), (48, 55025),

Gene: Mesh1\_65 Start: 55655, Stop: 55299, Start Num: 19

Candidate Starts for Mesh1\_65:

(4, 55943), (Start: 8 @55796 has 5 MA's), (Start: 13 @55736 has 46 MA's), (Start: 19 @55655 has 206 MA's), (28, 55589), (29, 55568), (39, 55484), (44, 55358), (45, 55352), (48, 55307),

Gene: MichaelPhcott\_63 Start: 55052, Stop: 54720, Start Num: 19

Candidate Starts for MichaelPhcott\_63:

(4, 55340), (Start: 8 @55193 has 5 MA's), (Start: 13 @55133 has 46 MA's), (Start: 19 @55052 has 206 MA's), (28, 54986), (29, 54965), (35, 54902), (39, 54881), (44, 54755), (45, 54749),

Gene: Mikota\_62 Start: 54618, Stop: 54262, Start Num: 19

Candidate Starts for Mikota\_62:

(4, 54906), (Start: 8 @54759 has 5 MA's), (Start: 13 @54699 has 46 MA's), (Start: 19 @54618 has 206 MA's), (28, 54552), (29, 54531), (39, 54447), (44, 54321), (45, 54315), (48, 54270),

Gene: MiniBoss\_62 Start: 54424, Stop: 54068, Start Num: 19

Candidate Starts for MiniBoss\_62:

(4, 54712), (Start: 8 @54565 has 5 MA's), (Start: 13 @54505 has 46 MA's), (Start: 19 @54424 has 206 MA's), (28, 54358), (29, 54337), (39, 54253), (44, 54127), (45, 54121), (48, 54076),

Gene: MitKao\_64 Start: 55170, Stop: 54733, Start Num: 13

Candidate Starts for MitKao\_64:

(4, 55377), (Start: 8 @55230 has 5 MA's), (Start: 13 @55170 has 46 MA's), (Start: 19 @55089 has 206 MA's), (28, 55023), (29, 55002), (39, 54918), (44, 54792), (45, 54786), (48, 54741),

Gene: Morgushi\_63 Start: 55078, Stop: 54722, Start Num: 19

Candidate Starts for Morgushi\_63:

(4, 55366), (Start: 8 @55219 has 5 MA's), (Start: 13 @55159 has 46 MA's), (Start: 19 @55078 has 206 MA's), (28, 55012), (29, 54991), (39, 54907), (44, 54781), (45, 54775), (48, 54730),

Gene: Morty\_65 Start: 55687, Stop: 55250, Start Num: 13

Candidate Starts for Morty\_65:

(4, 55894), (Start: 8 @55747 has 5 MA's), (Start: 13 @55687 has 46 MA's), (Start: 19 @55606 has 206 MA's), (28, 55540), (29, 55519), (39, 55435), (44, 55309), (45, 55303), (48, 55258),

Gene: Mosaic\_62 Start: 55164, Stop: 54727, Start Num: 13

Candidate Starts for Mosaic\_62:

(4, 55371), (Start: 8 @55224 has 5 MA's), (Start: 13 @55164 has 46 MA's), (Start: 19 @55083 has 206 MA's), (28, 55017), (29, 54996), (39, 54912), (44, 54786), (45, 54780), (48, 54735),

Gene: MrPhizzler\_64 Start: 55546, Stop: 55190, Start Num: 19

Candidate Starts for MrPhizzler\_64:

(4, 55834), (Start: 8 @55687 has 5 MA's), (11, 55669), (Start: 13 @55627 has 46 MA's), (Start: 19 @55546 has 206 MA's), (28, 55480), (29, 55459), (39, 55375), (44, 55249), (45, 55243), (48, 55198),

Gene: Mulan\_64 Start: 55317, Stop: 54961, Start Num: 19

Candidate Starts for Mulan\_64:

(4, 55605), (Start: 8 @55458 has 5 MA's), (Start: 13 @55398 has 46 MA's), (Start: 19 @55317 has 206 MA's), (28, 55251), (29, 55230), (39, 55146), (44, 55020), (45, 55014), (48, 54969),

Gene: Murdoc\_62 Start: 55079, Stop: 54723, Start Num: 19

Candidate Starts for Murdoc\_62:

(4, 55367), (Start: 8 @55220 has 5 MA's), (Start: 13 @55160 has 46 MA's), (Start: 19 @55079 has 206 MA's), (28, 55013), (29, 54992), (39, 54908), (44, 54782), (45, 54776), (48, 54731),

Gene: Mutante\_64 Start: 55089, Stop: 54733, Start Num: 19

Candidate Starts for Mutante\_64:

(4, 55377), (Start: 8 @55230 has 5 MA's), (Start: 13 @55170 has 46 MA's), (Start: 19 @55089 has 206 MA's), (28, 55023), (29, 55002), (39, 54918), (44, 54792), (45, 54786), (48, 54741),

Gene: Mysterious\_63 Start: 56569, Stop: 56225, Start Num: 17

Candidate Starts for Mysterious\_63:

(Start: 17 @56569 has 3 MA's), (22, 56542), (27, 56500), (37, 56422), (42, 56374), (46, 56284), (51, 56236),

Gene: Nacho\_0066 Start: 55978, Stop: 55481, Start Num: 8

Candidate Starts for Nacho\_0066:

(4, 56125), (Start: 8 @55978 has 5 MA's), (Start: 13 @55918 has 46 MA's), (Start: 19 @55837 has 206 MA's), (28, 55771), (29, 55750), (34, 55705), (39, 55666), (44, 55540), (45, 55534), (48, 55489),

Gene: Nangang\_63 Start: 56756, Stop: 56421, Start Num: 18

Candidate Starts for Nangang\_63:

(18, 56756), (22, 56732), (23, 56729), (24, 56723), (25, 56714), (42, 56570), (46, 56480), (49, 56450), (51, 56432),

Gene: Nehemiah\_62 Start: 56572, Stop: 56228, Start Num: 17

Candidate Starts for Nehemiah\_62:

(Start: 17 @56572 has 3 MA's), (22, 56545), (27, 56503), (37, 56425), (42, 56377), (46, 56287), (51, 56239),

Gene: Newman\_62 Start: 55115, Stop: 54759, Start Num: 19

Candidate Starts for Newman\_62:

(4, 55403), (Start: 8 @55256 has 5 MA's), (Start: 13 @55196 has 46 MA's), (Start: 19 @55115 has 206 MA's), (28, 55049), (29, 55028), (39, 54944), (44, 54818), (45, 54812), (48, 54767),

Gene: Nicole21\_65 Start: 55368, Stop: 55012, Start Num: 19

Candidate Starts for Nicole21\_65:

(4, 55656), (Start: 8 @55509 has 5 MA's), (Start: 13 @55449 has 46 MA's), (Start: 19 @55368 has 206 MA's), (28, 55302), (29, 55281), (39, 55197), (44, 55071), (45, 55065), (48, 55020),

Gene: Numberten\_63 Start: 55312, Stop: 54956, Start Num: 19

Candidate Starts for Numberten\_63:

(4, 55600), (Start: 8 @55453 has 5 MA's), (Start: 13 @55393 has 46 MA's), (Start: 19 @55312 has 206 MA's), (28, 55246), (29, 55225), (39, 55141), (44, 55015), (45, 55009), (48, 54964),

Gene: Nyala\_63 Start: 55087, Stop: 54731, Start Num: 19

Candidate Starts for Nyala\_63:

(4, 55375), (Start: 8 @55228 has 5 MA's), (Start: 13 @55168 has 46 MA's), (Start: 19 @55087 has 206 MA's), (28, 55021), (29, 55000), (39, 54916), (44, 54790), (45, 54784), (48, 54739),

Gene: OSmaximus\_65 Start: 55833, Stop: 55477, Start Num: 19

Candidate Starts for OSmaximus\_65:

(4, 56121), (Start: 8 @55974 has 5 MA's), (Start: 13 @55914 has 46 MA's), (Start: 19 @55833 has 206 MA's), (28, 55767), (29, 55746), (39, 55662), (44, 55536), (45, 55530), (48, 55485),

Gene: Olak\_63 Start: 55090, Stop: 54734, Start Num: 19

Candidate Starts for Olak\_63:

(4, 55378), (Start: 8 @55231 has 5 MA's), (Start: 13 @55171 has 46 MA's), (Start: 19 @55090 has 206 MA's), (28, 55024), (29, 55003), (39, 54919), (44, 54793), (45, 54787), (48, 54742),

Gene: Oline\_64 Start: 55192, Stop: 54836, Start Num: 19

Candidate Starts for Oline\_64:

(4, 55480), (Start: 8 @55333 has 5 MA's), (11, 55315), (Start: 13 @55273 has 46 MA's), (Start: 19 @55192 has 206 MA's), (28, 55126), (29, 55105), (39, 55021), (44, 54895), (45, 54889), (48, 54844),

Gene: Olive\_64 Start: 55303, Stop: 54947, Start Num: 19

Candidate Starts for Olive\_64:

(4, 55591), (Start: 8 @55444 has 5 MA's), (Start: 13 @55384 has 46 MA's), (Start: 19 @55303 has 206 MA's), (28, 55237), (29, 55216), (39, 55132), (44, 55006), (45, 55000), (48, 54955),

Gene: OliverWalter\_62 Start: 55122, Stop: 54766, Start Num: 19

Candidate Starts for OliverWalter\_62:

(4, 55410), (Start: 8 @55263 has 5 MA's), (Start: 13 @55203 has 46 MA's), (Start: 19 @55122 has 206 MA's), (28, 55056), (29, 55035), (39, 54951), (44, 54825), (45, 54819), (48, 54774),

Gene: Omniscient\_65 Start: 55950, Stop: 55594, Start Num: 19

Candidate Starts for Omniscient\_65:

(4, 56238), (Start: 8 @56091 has 5 MA's), (Start: 13 @56031 has 46 MA's), (Start: 19 @55950 has 206 MA's), (28, 55884), (29, 55863), (39, 55779), (44, 55653), (45, 55647), (48, 55602),



Gene: Oosterbaan\_63 Start: 55369, Stop: 55013, Start Num: 19

Candidate Starts for Oosterbaan\_63:

(4, 55657), (Start: 8 @55510 has 5 MA's), (Start: 13 @55450 has 46 MA's), (Start: 19 @55369 has 206 MA's), (28, 55303), (29, 55282), (39, 55198), (44, 55072), (45, 55066), (48, 55021),

Gene: Orfeu\_63 Start: 55626, Stop: 55270, Start Num: 19

Candidate Starts for Orfeu\_63:

(4, 55914), (Start: 8 @55767 has 5 MA's), (Start: 13 @55707 has 46 MA's), (Start: 19 @55626 has 206 MA's), (28, 55560), (29, 55539), (39, 55455), (44, 55329), (45, 55323), (48, 55278),

Gene: Orion\_65 Start: 55031, Stop: 54675, Start Num: 19

Candidate Starts for Orion\_65:

(4, 55319), (Start: 8 @55172 has 5 MA's), (Start: 13 @55112 has 46 MA's), (Start: 19 @55031 has 206 MA's), (28, 54965), (29, 54944), (39, 54860), (44, 54734), (45, 54728), (48, 54683),

Gene: Orwigg\_64 Start: 55011, Stop: 54655, Start Num: 19

Candidate Starts for Orwigg\_64:

(4, 55299), (Start: 8 @55152 has 5 MA's), (Start: 13 @55092 has 46 MA's), (Start: 19 @55011 has 206 MA's), (28, 54945), (29, 54924), (39, 54840), (44, 54714), (45, 54708), (48, 54663),

Gene: PG1\_64 Start: 55602, Stop: 55246, Start Num: 19

Candidate Starts for PG1\_64:

(4, 55890), (Start: 8 @55743 has 5 MA's), (Start: 13 @55683 has 46 MA's), (Start: 19 @55602 has 206 MA's), (28, 55536), (29, 55515), (39, 55431), (44, 55305), (45, 55299), (48, 55254),

Gene: Pacifista\_63 Start: 55086, Stop: 54730, Start Num: 19

Candidate Starts for Pacifista\_63:

(4, 55374), (Start: 8 @55227 has 5 MA's), (Start: 13 @55167 has 46 MA's), (Start: 19 @55086 has 206 MA's), (28, 55020), (29, 54999), (39, 54915), (44, 54789), (45, 54783), (48, 54738),

Gene: Phamished\_66 Start: 55380, Stop: 54943, Start Num: 13

Candidate Starts for Phamished\_66:

(4, 55587), (Start: 8 @55440 has 5 MA's), (Start: 13 @55380 has 46 MA's), (Start: 19 @55299 has 206 MA's), (28, 55233), (29, 55212), (38, 55131), (39, 55128), (44, 55002), (45, 54996), (48, 54951),

Gene: Phareon\_63 Start: 54808, Stop: 54452, Start Num: 19

Candidate Starts for Phareon\_63:

(4, 55096), (Start: 8 @54949 has 5 MA's), (Start: 13 @54889 has 46 MA's), (Start: 19 @54808 has 206 MA's), (28, 54742), (29, 54721), (39, 54637), (44, 54511), (45, 54505), (48, 54460),

Gene: PhatCats2014\_64 Start: 55607, Stop: 55251, Start Num: 19

Candidate Starts for PhatCats2014\_64:

(4, 55895), (Start: 8 @55748 has 5 MA's), (Start: 13 @55688 has 46 MA's), (Start: 19 @55607 has 206 MA's), (28, 55541), (29, 55520), (39, 55436), (44, 55310), (45, 55304), (48, 55259),

Gene: PhatLouie\_66 Start: 55625, Stop: 55269, Start Num: 19

Candidate Starts for PhatLouie\_66:

(4, 55913), (Start: 8 @55766 has 5 MA's), (Start: 13 @55706 has 46 MA's), (Start: 19 @55625 has 206 MA's), (28, 55559), (29, 55538), (39, 55454), (44, 55328), (45, 55322), (48, 55277),

Gene: Phelemich\_61 Start: 56567, Stop: 56223, Start Num: 17

Candidate Starts for Phelemich\_61:

(Start: 17 @56567 has 3 MA's), (22, 56540), (26, 56510), (27, 56498), (36, 56423), (37, 56420), (42, 56372), (46, 56282), (51, 56234),

Gene: PhenghisKhan\_65 Start: 55257, Stop: 54901, Start Num: 19

Candidate Starts for PhenghisKhan\_65:

(4, 55545), (Start: 8 @55398 has 5 MA's), (Start: 13 @55338 has 46 MA's), (Start: 19 @55257 has 206 MA's), (28, 55191), (29, 55170), (34, 55125), (35, 55107), (39, 55086), (44, 54960), (45, 54954), (48, 54909),

Gene: Pherdinand\_65 Start: 55370, Stop: 55014, Start Num: 19

Candidate Starts for Pherdinand\_65:

(4, 55658), (Start: 8 @55511 has 5 MA's), (Start: 13 @55451 has 46 MA's), (Start: 19 @55370 has 206 MA's), (28, 55304), (39, 55199), (44, 55073), (45, 55067), (48, 55022),

Gene: Phergie\_65 Start: 55249, Stop: 54893, Start Num: 19

Candidate Starts for Phergie\_65:

(4, 55537), (Start: 8 @55390 has 5 MA's), (Start: 13 @55330 has 46 MA's), (Start: 19 @55249 has 206 MA's), (28, 55183), (29, 55162), (34, 55117), (35, 55099), (39, 55078), (44, 54952), (45, 54946), (48, 54901),

Gene: Phipps\_64 Start: 54879, Stop: 54523, Start Num: 19

Candidate Starts for Phipps\_64:

(4, 55167), (Start: 8 @55020 has 5 MA's), (Start: 13 @54960 has 46 MA's), (Start: 19 @54879 has 206 MA's), (28, 54813), (29, 54792), (39, 54708), (44, 54582), (45, 54576), (48, 54531),

Gene: Phleuron\_63 Start: 55055, Stop: 54723, Start Num: 19

Candidate Starts for Phleuron\_63:

(4, 55343), (Start: 8 @55196 has 5 MA's), (Start: 13 @55136 has 46 MA's), (Start: 19 @55055 has 206 MA's), (28, 54989), (29, 54968), (35, 54905), (39, 54884), (44, 54758), (45, 54752),

Gene: PhrankReynolds\_64 Start: 55254, Stop: 54898, Start Num: 19

Candidate Starts for PhrankReynolds\_64:

(4, 55542), (Start: 8 @55395 has 5 MA's), (Start: 13 @55335 has 46 MA's), (Start: 19 @55254 has 206 MA's), (28, 55188), (29, 55167), (34, 55122), (35, 55104), (39, 55083), (44, 54957), (45, 54951), (48, 54906),

Gene: PhrodoBaggins\_65 Start: 55555, Stop: 55118, Start Num: 13

Candidate Starts for PhrodoBaggins\_65:

(4, 55762), (Start: 8 @55615 has 5 MA's), (Start: 13 @55555 has 46 MA's), (Start: 19 @55474 has 206 MA's), (28, 55408), (29, 55387), (34, 55342), (35, 55324), (39, 55303), (44, 55177), (45, 55171), (48, 55126),

Gene: Phunky\_62 Start: 55106, Stop: 54750, Start Num: 19

Candidate Starts for Phunky\_62:

(4, 55394), (Start: 8 @55247 has 5 MA's), (Start: 13 @55187 has 46 MA's), (Start: 19 @55106 has 206 MA's), (28, 55040), (29, 55019), (39, 54935), (44, 54809), (45, 54803), (48, 54758),

Gene: Piglet\_0064 Start: 55720, Stop: 55223, Start Num: 8

Candidate Starts for Piglet\_0064:

(4, 55867), (Start: 8 @55720 has 5 MA's), (Start: 13 @55660 has 46 MA's), (Start: 19 @55579 has 206 MA's), (28, 55513), (29, 55492), (39, 55408), (44, 55282), (45, 55276), (48, 55231),

Gene: PinheadLarry\_63 Start: 55497, Stop: 55084, Start Num: 13

Candidate Starts for PinheadLarry\_63:

(4, 55704), (Start: 8 @55557 has 5 MA's), (Start: 13 @55497 has 46 MA's), (Start: 19 @55416 has 206 MA's), (28, 55350), (29, 55329), (34, 55284), (39, 55245), (44, 55119), (45, 55113),

Gene: Pinkman\_64 Start: 55192, Stop: 54836, Start Num: 19

Candidate Starts for Pinkman\_64:

(4, 55480), (Start: 8 @55333 has 5 MA's), (Start: 13 @55273 has 46 MA's), (Start: 19 @55192 has 206 MA's), (28, 55126), (29, 55105), (39, 55021), (44, 54895), (45, 54889), (48, 54844),

Gene: Pipsqueak\_62 Start: 55116, Stop: 54679, Start Num: 13

Candidate Starts for Pipsqueak\_62:

(4, 55323), (Start: 8 @55176 has 5 MA's), (Start: 13 @55116 has 46 MA's), (Start: 19 @55035 has 206 MA's), (28, 54969), (29, 54948), (39, 54864), (44, 54738), (45, 54732), (48, 54687),

Gene: Placalicious\_65 Start: 56136, Stop: 55780, Start Num: 19

Candidate Starts for Placalicious\_65:

(4, 56424), (Start: 8 @56277 has 5 MA's), (Start: 13 @56217 has 46 MA's), (Start: 19 @56136 has 206 MA's), (28, 56070), (29, 56049), (39, 55965), (44, 55839), (45, 55833), (48, 55788),

Gene: Plmatters\_63 Start: 55109, Stop: 54753, Start Num: 19

Candidate Starts for Plmatters\_63:

(4, 55397), (Start: 8 @55250 has 5 MA's), (Start: 13 @55190 has 46 MA's), (Start: 19 @55109 has 206 MA's), (28, 55043), (29, 55022), (39, 54938), (44, 54812), (45, 54806), (48, 54761),

Gene: Podrick\_63 Start: 54969, Stop: 54532, Start Num: 13

Candidate Starts for Podrick\_63:

(4, 55176), (Start: 8 @55029 has 5 MA's), (Start: 13 @54969 has 46 MA's), (Start: 19 @54888 has 206 MA's), (28, 54822), (29, 54801), (39, 54717), (44, 54591), (45, 54585), (48, 54540),

Gene: Pops\_62 Start: 55187, Stop: 54774, Start Num: 13

Candidate Starts for Pops\_62:

(4, 55394), (Start: 8 @55247 has 5 MA's), (Start: 13 @55187 has 46 MA's), (Start: 19 @55106 has 206 MA's), (28, 55040), (29, 55019), (34, 54974), (39, 54935), (44, 54809), (45, 54803),

Gene: Potter\_62 Start: 55100, Stop: 54744, Start Num: 19

Candidate Starts for Potter\_62:

(4, 55388), (Start: 8 @55241 has 5 MA's), (Start: 13 @55181 has 46 MA's), (Start: 19 @55100 has 206 MA's), (28, 55034), (29, 55013), (39, 54929), (44, 54803), (45, 54797), (48, 54752),

Gene: Prickles\_66 Start: 55601, Stop: 55245, Start Num: 19

Candidate Starts for Prickles\_66:

(4, 55889), (Start: 8 @55742 has 5 MA's), (Start: 13 @55682 has 46 MA's), (Start: 19 @55601 has 206 MA's), (28, 55535), (29, 55514), (39, 55430), (44, 55304), (45, 55298), (48, 55253),

Gene: ProfessorX\_63 Start: 55099, Stop: 54743, Start Num: 19

Candidate Starts for ProfessorX\_63:

(4, 55387), (Start: 8 @55240 has 5 MA's), (Start: 13 @55180 has 46 MA's), (Start: 19 @55099 has 206 MA's), (28, 55033), (29, 55012), (39, 54928), (44, 54802), (45, 54796), (48, 54751),

Gene: Puhltonio\_63 Start: 55374, Stop: 55018, Start Num: 19

Candidate Starts for Puhltonio\_63:

(4, 55662), (Start: 8 @55515 has 5 MA's), (Start: 13 @55455 has 46 MA's), (Start: 19 @55374 has 206 MA's), (28, 55308), (29, 55287), (39, 55203), (44, 55077), (45, 55071), (48, 55026),

Gene: QueenBeane\_64 Start: 55406, Stop: 55050, Start Num: 19

Candidate Starts for QueenBeane\_64:

(4, 55694), (Start: 8 @55547 has 5 MA's), (Start: 13 @55487 has 46 MA's), (Start: 19 @55406 has 206 MA's), (28, 55340), (39, 55235), (44, 55109), (45, 55103), (48, 55058),

Gene: Quisquilliae\_65 Start: 55367, Stop: 55011, Start Num: 19

Candidate Starts for Quisquilliae\_65:

(4, 55655), (Start: 8 @55508 has 5 MA's), (Start: 13 @55448 has 46 MA's), (Start: 19 @55367 has 206 MA's), (28, 55301), (29, 55280), (39, 55196), (44, 55070), (45, 55064), (48, 55019),

Gene: RedMaple\_65 Start: 55842, Stop: 55486, Start Num: 19

Candidate Starts for RedMaple\_65:

(4, 56130), (Start: 8 @55983 has 5 MA's), (Start: 13 @55923 has 46 MA's), (Start: 19 @55842 has 206 MA's), (28, 55776), (29, 55755), (39, 55671), (44, 55545), (45, 55539), (48, 55494),

Gene: Reprobate\_62 Start: 56572, Stop: 56228, Start Num: 17

Candidate Starts for Reprobate\_62:

(Start: 17 @56572 has 3 MA's), (22, 56545), (26, 56515), (27, 56503), (36, 56428), (37, 56425), (42, 56377), (46, 56287), (51, 56239),

Gene: Rich\_62 Start: 57709, Stop: 57323, Start Num: 16

Candidate Starts for Rich\_62:

(Start: 16 @57709 has 6 MA's), (22, 57682), (23, 57679), (25, 57664), (30, 57598), (40, 57526), (41, 57523), (42, 57472), (46, 57382), (49, 57352), (50, 57340), (51, 57334),

Gene: Ricotta\_64 Start: 55099, Stop: 54743, Start Num: 19

Candidate Starts for Ricotta\_64:

(4, 55387), (Start: 8 @55240 has 5 MA's), (Start: 13 @55180 has 46 MA's), (Start: 19 @55099 has 206 MA's), (28, 55033), (29, 55012), (39, 54928), (44, 54802), (45, 54796), (48, 54751),

Gene: Riggan\_65 Start: 55399, Stop: 55043, Start Num: 19

Candidate Starts for Riggan\_65:

(4, 55687), (Start: 8 @55540 has 5 MA's), (Start: 13 @55480 has 46 MA's), (Start: 19 @55399 has 206 MA's), (28, 55333), (29, 55312), (39, 55228), (44, 55102), (45, 55096), (48, 55051),

Gene: Rimu\_67 Start: 55567, Stop: 55211, Start Num: 19

Candidate Starts for Rimu\_67:

(4, 55855), (Start: 8 @55708 has 5 MA's), (11, 55690), (Start: 13 @55648 has 46 MA's), (Start: 19 @55567 has 206 MA's), (28, 55501), (29, 55480), (39, 55396), (44, 55270), (45, 55264), (48, 55219),

Gene: Robyn\_64 Start: 55246, Stop: 54890, Start Num: 19

Candidate Starts for Robyn\_64:

(4, 55534), (Start: 8 @55387 has 5 MA's), (Start: 13 @55327 has 46 MA's), (Start: 19 @55246 has 206 MA's), (28, 55180), (29, 55159), (39, 55075), (44, 54949), (45, 54943), (48, 54898),

Gene: Roliet\_62 Start: 54441, Stop: 54085, Start Num: 19

Candidate Starts for Roliet\_62:

(4, 54729), (Start: 8 @54582 has 5 MA's), (Start: 13 @54522 has 46 MA's), (Start: 19 @54441 has 206 MA's), (28, 54375), (29, 54354), (35, 54291), (39, 54270), (44, 54144), (45, 54138), (48, 54093),

Gene: Roscoe\_65 Start: 55545, Stop: 55189, Start Num: 19

Candidate Starts for Roscoe\_65:

(4, 55833), (Start: 8 @55686 has 5 MA's), (Start: 13 @55626 has 46 MA's), (Start: 19 @55545 has 206 MA's), (28, 55479), (29, 55458), (39, 55374), (44, 55248), (45, 55242), (48, 55197),

Gene: Roy17\_62 Start: 54880, Stop: 54443, Start Num: 13

Candidate Starts for Roy17\_62:

(4, 55087), (Start: 8 @54940 has 5 MA's), (Start: 13 @54880 has 46 MA's), (Start: 19 @54799 has 206 MA's), (28, 54733), (29, 54712), (39, 54628), (44, 54502), (45, 54496), (48, 54451),

Gene: SDcharge11\_64 Start: 54694, Stop: 54257, Start Num: 13

Candidate Starts for SDcharge11\_64:

(4, 54901), (Start: 8 @54754 has 5 MA's), (Start: 13 @54694 has 46 MA's), (Start: 19 @54613 has 206 MA's), (28, 54547), (29, 54526), (39, 54442), (44, 54316), (45, 54310), (48, 54265),

Gene: Samaymay\_64 Start: 55406, Stop: 55050, Start Num: 19

Candidate Starts for Samaymay\_64:

(4, 55694), (Start: 8 @55547 has 5 MA's), (Start: 13 @55487 has 46 MA's), (Start: 19 @55406 has 206 MA's), (28, 55340), (39, 55235), (44, 55109), (45, 55103), (48, 55058),

Gene: SassyCat97\_63 Start: 55091, Stop: 54735, Start Num: 19

Candidate Starts for SassyCat97\_63:

(4, 55379), (Start: 8 @55232 has 5 MA's), (Start: 13 @55172 has 46 MA's), (Start: 19 @55091 has 206 MA's), (28, 55025), (29, 55004), (39, 54920), (44, 54794), (45, 54788), (48, 54743),

Gene: Schadenfreude\_64 Start: 54972, Stop: 54616, Start Num: 19

Candidate Starts for Schadenfreude\_64:

(4, 55260), (Start: 8 @55113 has 5 MA's), (Start: 13 @55053 has 46 MA's), (Start: 19 @54972 has 206 MA's), (28, 54906), (29, 54885), (39, 54801), (44, 54675), (45, 54669), (48, 54624),

Gene: Schueller\_65 Start: 55329, Stop: 54973, Start Num: 19

Candidate Starts for Schueller\_65:

(4, 55617), (Start: 8 @55470 has 5 MA's), (Start: 13 @55410 has 46 MA's), (Start: 19 @55329 has 206 MA's), (28, 55263), (29, 55242), (34, 55197), (39, 55158), (44, 55032), (45, 55026), (48, 54981),

Gene: Scoot17C\_64 Start: 55033, Stop: 54677, Start Num: 19

Candidate Starts for Scoot17C\_64:

(4, 55321), (Start: 8 @55174 has 5 MA's), (Start: 13 @55114 has 46 MA's), (Start: 19 @55033 has 206 MA's), (28, 54967), (29, 54946), (39, 54862), (44, 54736), (45, 54730), (48, 54685),

Gene: Scrick\_64 Start: 55105, Stop: 54749, Start Num: 19

Candidate Starts for Scrick\_64:

(4, 55393), (Start: 8 @55246 has 5 MA's), (Start: 13 @55186 has 46 MA's), (Start: 19 @55105 has 206 MA's), (28, 55039), (29, 55018), (34, 54973), (39, 54934), (44, 54808), (45, 54802), (48, 54757),

Gene: Selr12\_65 Start: 55115, Stop: 54759, Start Num: 19

Candidate Starts for Selr12\_65:

(4, 55403), (Start: 8 @55256 has 5 MA's), (Start: 13 @55196 has 46 MA's), (Start: 19 @55115 has 206 MA's), (28, 55049), (29, 55028), (39, 54944), (44, 54818), (45, 54812), (48, 54767),

Gene: Serendipitous\_62 Start: 56107, Stop: 55766, Start Num: 17

Candidate Starts for Serendipitous\_62:

(Start: 17 @56107 has 3 MA's), (22, 56080), (23, 56077), (42, 55915), (46, 55825), (49, 55795), (50, 55783),

Gene: Serendipity\_63 Start: 55388, Stop: 55032, Start Num: 19

Candidate Starts for Serendipity\_63:

(4, 55676), (Start: 8 @55529 has 5 MA's), (Start: 13 @55469 has 46 MA's), (Start: 19 @55388 has 206 MA's), (28, 55322), (29, 55301), (39, 55217), (44, 55091), (45, 55085), (48, 55040),

Gene: Serpentine\_0064 Start: 55552, Stop: 55115, Start Num: 13

Candidate Starts for Serpentine\_0064:

(4, 55759), (Start: 8 @55612 has 5 MA's), (Start: 13 @55552 has 46 MA's), (Start: 19 @55471 has 206 MA's), (28, 55405), (29, 55384), (39, 55300), (44, 55174), (45, 55168), (48, 55123),

Gene: Sheila\_61 Start: 54473, Stop: 54117, Start Num: 19

Candidate Starts for Sheila\_61:

(4, 54761), (Start: 8 @54614 has 5 MA's), (Start: 13 @54554 has 46 MA's), (Start: 19 @54473 has 206 MA's), (28, 54407), (29, 54386), (39, 54302), (44, 54176), (45, 54170), (48, 54125),

Gene: Shenyu\_63 Start: 56833, Stop: 56498, Start Num: 18

Candidate Starts for Shenyu\_63:

(18, 56833), (22, 56809), (23, 56806), (24, 56800), (25, 56791), (42, 56647), (46, 56557), (49, 56527), (51, 56509),

Gene: ShiVal\_62 Start: 55191, Stop: 54754, Start Num: 13

Candidate Starts for ShiVal\_62:

(4, 55398), (Start: 8 @55251 has 5 MA's), (Start: 13 @55191 has 46 MA's), (Start: 19 @55110 has 206 MA's), (28, 55044), (29, 55023), (39, 54939), (44, 54813), (45, 54807), (48, 54762),

Gene: Sigman\_64 Start: 55066, Stop: 54710, Start Num: 19

Candidate Starts for Sigman\_64:

(4, 55354), (Start: 8 @55207 has 5 MA's), (Start: 13 @55147 has 46 MA's), (Start: 19 @55066 has 206 MA's), (28, 55000), (29, 54979), (39, 54895), (44, 54769), (45, 54763), (48, 54718),

Gene: SilverBell\_65 Start: 55351, Stop: 54995, Start Num: 19

Candidate Starts for SilverBell\_65:

(4, 55639), (Start: 8 @55492 has 5 MA's), (Start: 13 @55432 has 46 MA's), (Start: 19 @55351 has 206 MA's), (28, 55285), (29, 55264), (39, 55180), (44, 55054), (45, 55048), (48, 55003),

Gene: Simielle\_64 Start: 55070, Stop: 54714, Start Num: 19

Candidate Starts for Simielle\_64:

(4, 55358), (Start: 8 @55211 has 5 MA's), (Start: 13 @55151 has 46 MA's), (Start: 19 @55070 has 206 MA's), (28, 55004), (29, 54983), (39, 54899), (44, 54773), (45, 54767), (48, 54722),

Gene: SirJeffery\_63 Start: 56753, Stop: 56412, Start Num: 16

Candidate Starts for SirJeffery\_63:

(Start: 16 @56753 has 6 MA's), (22, 56726), (25, 56708), (30, 56642), (37, 56609), (42, 56561), (46, 56471), (49, 56441), (51, 56423),

Gene: Skippy\_65 Start: 55324, Stop: 54968, Start Num: 19

Candidate Starts for Skippy\_65:

(4, 55612), (Start: 8 @55465 has 5 MA's), (Start: 13 @55405 has 46 MA's), (Start: 19 @55324 has 206 MA's), (28, 55258), (29, 55237), (39, 55153), (44, 55027), (45, 55021), (48, 54976),

Gene: Slatt\_65 Start: 55389, Stop: 55033, Start Num: 19

Candidate Starts for Slatt\_65:

(4, 55677), (Start: 8 @55530 has 5 MA's), (Start: 13 @55470 has 46 MA's), (Start: 19 @55389 has 206 MA's), (28, 55323), (29, 55302), (39, 55218), (44, 55092), (45, 55086), (48, 55041),

Gene: Soile\_65 Start: 55620, Stop: 55264, Start Num: 19

Candidate Starts for Soile\_65:

(4, 55908), (Start: 8 @55761 has 5 MA's), (11, 55743), (Start: 13 @55701 has 46 MA's), (Start: 19 @55620 has 206 MA's), (28, 55554), (29, 55533), (39, 55449), (44, 55323), (45, 55317), (48, 55272),

Gene: Sophia\_63 Start: 55079, Stop: 54723, Start Num: 19

Candidate Starts for Sophia\_63:

(4, 55367), (Start: 8 @55220 has 5 MA's), (Start: 13 @55160 has 46 MA's), (Start: 19 @55079 has 206 MA's), (28, 55013), (29, 54992), (39, 54908), (44, 54782), (45, 54776), (48, 54731),

Gene: Soto\_62 Start: 54727, Stop: 54290, Start Num: 13

Candidate Starts for Soto\_62:

(4, 54934), (Start: 8 @54787 has 5 MA's), (Start: 13 @54727 has 46 MA's), (Start: 19 @54646 has 206 MA's), (28, 54580), (29, 54559), (39, 54475), (44, 54349), (45, 54343), (48, 54298),

Gene: Spartan300\_64 Start: 55307, Stop: 54951, Start Num: 19

Candidate Starts for Spartan300\_64:

(4, 55595), (Start: 8 @55448 has 5 MA's), (Start: 13 @55388 has 46 MA's), (Start: 19 @55307 has 206 MA's), (28, 55241), (29, 55220), (35, 55157), (39, 55136), (44, 55010), (45, 55004), (48, 54959),

Gene: Squid\_63 Start: 55172, Stop: 54735, Start Num: 13

Candidate Starts for Squid\_63:

(4, 55379), (Start: 8 @55232 has 5 MA's), (Start: 13 @55172 has 46 MA's), (Start: 19 @55091 has 206 MA's), (28, 55025), (29, 55004), (39, 54920), (44, 54794), (45, 54788), (48, 54743),

Gene: Squiggle\_64 Start: 55099, Stop: 54743, Start Num: 19

Candidate Starts for Squiggle\_64:

(4, 55387), (Start: 8 @55240 has 5 MA's), (Start: 13 @55180 has 46 MA's), (Start: 19 @55099 has 206 MA's), (28, 55033), (29, 55012), (39, 54928), (44, 54802), (45, 54796), (48, 54751),

Gene: StinkyVeggy\_63 Start: 56576, Stop: 56241, Start Num: 18

Candidate Starts for StinkyVeggy\_63:

(18, 56576), (22, 56552), (23, 56549), (24, 56543), (25, 56534), (42, 56390), (46, 56300), (49, 56270), (51, 56252),

Gene: Struggle\_65 Start: 55183, Stop: 54827, Start Num: 19

Candidate Starts for Struggle\_65:

(4, 55471), (Start: 8 @55324 has 5 MA's), (11, 55306), (Start: 13 @55264 has 46 MA's), (Start: 19 @55183 has 206 MA's), (28, 55117), (29, 55096), (39, 55012), (44, 54886), (45, 54880), (48, 54835),

Gene: Suffolk\_62 Start: 54735, Stop: 54238, Start Num: 8

Candidate Starts for Suffolk\_62:

(4, 54882), (Start: 8 @54735 has 5 MA's), (Start: 13 @54675 has 46 MA's), (Start: 19 @54594 has 206 MA's), (28, 54528), (29, 54507), (39, 54423), (44, 54297), (45, 54291), (48, 54246),

Gene: Suigeneris\_65 Start: 56871, Stop: 56530, Start Num: 16

Candidate Starts for Suigeneris\_65:

(Start: 16 @56871 has 6 MA's), (22, 56844), (25, 56826), (30, 56760), (37, 56727), (42, 56679), (46, 56589), (49, 56559), (51, 56541),

Gene: Surely\_64 Start: 55381, Stop: 55025, Start Num: 19

Candidate Starts for Surely\_64:

(4, 55669), (Start: 8 @55522 has 5 MA's), (Start: 13 @55462 has 46 MA's), (Start: 19 @55381 has 206 MA's), (28, 55315), (29, 55294), (39, 55210), (44, 55084), (45, 55078), (48, 55033),

Gene: Swiphy\_68 Start: 55625, Stop: 55269, Start Num: 19

Candidate Starts for Swiphy\_68:

(4, 55913), (Start: 8 @55766 has 5 MA's), (Start: 13 @55706 has 46 MA's), (Start: 19 @55625 has 206 MA's), (28, 55559), (29, 55538), (39, 55454), (44, 55328), (45, 55322), (48, 55277),

Gene: Swish\_65 Start: 55355, Stop: 54999, Start Num: 19

Candidate Starts for Swish\_65:

(4, 55643), (Start: 8 @55496 has 5 MA's), (Start: 13 @55436 has 46 MA's), (Start: 19 @55355 has 206 MA's), (28, 55289), (39, 55184), (44, 55058), (45, 55052), (48, 55007),

Gene: TallGrassMM\_63 Start: 54995, Stop: 54639, Start Num: 19

Candidate Starts for TallGrassMM\_63:

(4, 55283), (Start: 8 @55136 has 5 MA's), (Start: 13 @55076 has 46 MA's), (Start: 19 @54995 has 206 MA's), (28, 54929), (29, 54908), (39, 54824), (44, 54698), (45, 54692), (48, 54647),

Gene: Telesworld\_62 Start: 55200, Stop: 54844, Start Num: 19

Candidate Starts for Telesworld\_62:

(4, 55488), (Start: 8 @55341 has 5 MA's), (Start: 13 @55281 has 46 MA's), (Start: 19 @55200 has 206 MA's), (28, 55134), (29, 55113), (39, 55029), (44, 54903), (45, 54897), (48, 54852),

Gene: Thora\_63 Start: 55377, Stop: 55021, Start Num: 19

Candidate Starts for Thora\_63:

(4, 55665), (Start: 8 @55518 has 5 MA's), (Start: 13 @55458 has 46 MA's), (Start: 19 @55377 has 206 MA's), (28, 55311), (29, 55290), (39, 55206), (44, 55080), (45, 55074), (48, 55029),

Gene: ThreeOh3D2\_65 Start: 55679, Stop: 55242, Start Num: 13

Candidate Starts for ThreeOh3D2\_65:

(4, 55886), (Start: 8 @55739 has 5 MA's), (Start: 13 @55679 has 46 MA's), (Start: 19 @55598 has 206 MA's), (28, 55532), (29, 55511), (39, 55427), (44, 55301), (45, 55295), (48, 55250),

Gene: Thunderbird\_64 Start: 55338, Stop: 54982, Start Num: 19

Candidate Starts for Thunderbird\_64:

(4, 55626), (Start: 8 @55479 has 5 MA's), (Start: 13 @55419 has 46 MA's), (Start: 19 @55338 has 206 MA's), (28, 55272), (29, 55251), (39, 55167), (44, 55041), (45, 55035), (48, 54990),

Gene: Timmi\_63 Start: 55080, Stop: 54724, Start Num: 19

Candidate Starts for Timmi\_63:

(4, 55368), (Start: 8 @55221 has 5 MA's), (Start: 13 @55161 has 46 MA's), (Start: 19 @55080 has 206 MA's), (28, 55014), (29, 54993), (39, 54909), (44, 54783), (45, 54777), (48, 54732),

Gene: TomBombadil\_64 Start: 55365, Stop: 55009, Start Num: 19

Candidate Starts for TomBombadil\_64:

(4, 55653), (Start: 8 @55506 has 5 MA's), (Start: 13 @55446 has 46 MA's), (Start: 19 @55365 has 206 MA's), (28, 55299), (29, 55278), (39, 55194), (44, 55068), (45, 55062), (48, 55017),

Gene: Tomlarah\_65 Start: 55934, Stop: 55578, Start Num: 19

Candidate Starts for Tomlarah\_65:



(4, 56222), (Start: 8 @56075 has 5 MA's), (Start: 13 @56015 has 46 MA's), (Start: 19 @55934 has 206 MA's), (28, 55868), (29, 55847), (39, 55763), (44, 55637), (45, 55631), (48, 55586),

Gene: Toni\_64 Start: 55527, Stop: 55171, Start Num: 19

Candidate Starts for Toni\_64:

(4, 55815), (Start: 8 @55668 has 5 MA's), (Start: 13 @55608 has 46 MA's), (Start: 19 @55527 has 206 MA's), (28, 55461), (29, 55440), (39, 55356), (44, 55230), (45, 55224), (48, 55179),

Gene: Tooj\_62 Start: 54750, Stop: 54394, Start Num: 19

Candidate Starts for Tooj\_62:

(4, 55038), (Start: 8 @54891 has 5 MA's), (Start: 13 @54831 has 46 MA's), (Start: 19 @54750 has 206 MA's), (28, 54684), (29, 54663), (39, 54579), (44, 54453), (45, 54447), (48, 54402),

Gene: True\_63 Start: 55090, Stop: 54734, Start Num: 19

Candidate Starts for True\_63:

(4, 55378), (Start: 8 @55231 has 5 MA's), (Start: 13 @55171 has 46 MA's), (Start: 19 @55090 has 206 MA's), (28, 55024), (29, 55003), (39, 54919), (44, 54793), (45, 54787), (48, 54742),

Gene: Trypo\_66 Start: 55843, Stop: 55406, Start Num: 13

Candidate Starts for Trypo\_66:

(4, 56050), (Start: 8 @55903 has 5 MA's), (11, 55885), (Start: 13 @55843 has 46 MA's), (Start: 19 @55762 has 206 MA's), (28, 55696), (29, 55675), (39, 55591), (44, 55465), (45, 55459), (48, 55414),

Gene: TyrionL\_65 Start: 55269, Stop: 54832, Start Num: 13

Candidate Starts for TyrionL\_65:

(4, 55476), (Start: 8 @55329 has 5 MA's), (Start: 13 @55269 has 46 MA's), (Start: 19 @55188 has 206 MA's), (28, 55122), (29, 55101), (34, 55056), (39, 55017), (44, 54891), (45, 54885), (48, 54840),

Gene: UAch1\_64 Start: 55321, Stop: 54965, Start Num: 20

Candidate Starts for UAch1\_64:

(14, 55378), (Start: 20 @55321 has 4 MA's), (28, 55255), (29, 55234), (39, 55150), (44, 55024), (45, 55018), (48, 54973),

Gene: UncleHowie\_62 Start: 54792, Stop: 54436, Start Num: 19

Candidate Starts for UncleHowie\_62:

(4, 55080), (Start: 8 @54933 has 5 MA's), (Start: 13 @54873 has 46 MA's), (Start: 19 @54792 has 206 MA's), (28, 54726), (29, 54705), (39, 54621), (44, 54495), (45, 54489), (48, 54444),

Gene: Usavi\_64 Start: 55460, Stop: 55104, Start Num: 19

Candidate Starts for Usavi\_64:

(4, 55748), (Start: 8 @55601 has 5 MA's), (Start: 13 @55541 has 46 MA's), (Start: 19 @55460 has 206 MA's), (28, 55394), (29, 55373), (39, 55289), (44, 55163), (45, 55157), (48, 55112),

Gene: Vaishali24\_63 Start: 54995, Stop: 54639, Start Num: 19

Candidate Starts for Vaishali24\_63:

(4, 55283), (Start: 8 @55136 has 5 MA's), (Start: 13 @55076 has 46 MA's), (Start: 19 @54995 has 206 MA's), (28, 54929), (29, 54908), (39, 54824), (44, 54698), (45, 54692), (48, 54647),

Gene: Valjean\_64 Start: 55317, Stop: 54961, Start Num: 19

Candidate Starts for Valjean\_64:

(4, 55605), (Start: 8 @55458 has 5 MA's), (Start: 13 @55398 has 46 MA's), (Start: 19 @55317 has 206 MA's), (28, 55251), (29, 55230), (35, 55167), (39, 55146), (44, 55020), (45, 55014), (48, 54969),

Gene: Vaticameos\_61 Start: 53625, Stop: 53269, Start Num: 19

Candidate Starts for Vaticameos\_61:

(4, 53913), (Start: 8 @53766 has 5 MA's), (Start: 13 @53706 has 46 MA's), (Start: 19 @53625 has 206 MA's), (28, 53559), (29, 53538), (39, 53454), (44, 53328), (45, 53322), (48, 53277),

Gene: Veritas\_64 Start: 55267, Stop: 54935, Start Num: 19

Candidate Starts for Veritas\_64:

(4, 55555), (Start: 8 @55408 has 5 MA's), (Start: 13 @55348 has 46 MA's), (Start: 19 @55267 has 206 MA's), (28, 55201), (29, 55180), (35, 55117), (39, 55096), (44, 54970), (45, 54964),

Gene: Virapocalypse\_65 Start: 55416, Stop: 55060, Start Num: 19

Candidate Starts for Virapocalypse\_65:

(4, 55704), (Start: 8 @55557 has 5 MA's), (Start: 13 @55497 has 46 MA's), (Start: 19 @55416 has 206 MA's), (28, 55350), (29, 55329), (39, 55245), (44, 55119), (45, 55113), (48, 55068),

Gene: Virgeve\_63 Start: 55054, Stop: 54698, Start Num: 19

Candidate Starts for Virgeve\_63:

(4, 55342), (Start: 8 @55195 has 5 MA's), (Start: 13 @55135 has 46 MA's), (Start: 19 @55054 has 206 MA's), (28, 54988), (29, 54967), (34, 54922), (39, 54883), (44, 54757), (45, 54751), (48, 54706),

Gene: Vista\_63 Start: 55174, Stop: 54737, Start Num: 13

Candidate Starts for Vista\_63:

(4, 55381), (Start: 8 @55234 has 5 MA's), (Start: 13 @55174 has 46 MA's), (Start: 19 @55093 has 206 MA's), (28, 55027), (29, 55006), (39, 54922), (44, 54796), (45, 54790), (48, 54745),

Gene: Vivaldi\_65 Start: 55692, Stop: 55195, Start Num: 9

Candidate Starts for Vivaldi\_65:

(1, 56097), (2, 56082), (3, 56076), (7, 55713), (Start: 9 @55692 has 1 MA's), (Start: 13 @55632 has 46 MA's), (Start: 19 @55551 has 206 MA's), (28, 55485), (29, 55464), (35, 55401), (39, 55380), (44, 55254), (45, 55248), (48, 55203),

Gene: Vortex\_63 Start: 55075, Stop: 54719, Start Num: 19

Candidate Starts for Vortex\_63:

(4, 55363), (Start: 8 @55216 has 5 MA's), (Start: 13 @55156 has 46 MA's), (Start: 19 @55075 has 206 MA's), (28, 55009), (29, 54988), (39, 54904), (44, 54778), (45, 54772), (48, 54727),

Gene: Wallhey\_65 Start: 55198, Stop: 54842, Start Num: 19

Candidate Starts for Wallhey\_65:

(4, 55486), (Start: 8 @55339 has 5 MA's), (Start: 13 @55279 has 46 MA's), (Start: 19 @55198 has 206 MA's), (28, 55132), (29, 55111), (39, 55027), (44, 54901), (45, 54895), (48, 54850),

Gene: Waterdiva\_64 Start: 55454, Stop: 55098, Start Num: 19

Candidate Starts for Waterdiva\_64:

(4, 55742), (Start: 8 @55595 has 5 MA's), (Start: 13 @55535 has 46 MA's), (Start: 19 @55454 has 206 MA's), (28, 55388), (29, 55367), (39, 55283), (44, 55157), (45, 55151), (48, 55106),

Gene: Weher20\_62 Start: 55709, Stop: 55377, Start Num: 19

Candidate Starts for Weher20\_62:

(4, 55997), (Start: 8 @55850 has 5 MA's), (Start: 13 @55790 has 46 MA's), (Start: 19 @55709 has 206 MA's), (28, 55643), (29, 55622), (35, 55559), (39, 55538), (44, 55412), (45, 55406),

Gene: Windsor\_64 Start: 55721, Stop: 55284, Start Num: 13

Candidate Starts for Windsor\_64:

(4, 55928), (Start: 8 @55781 has 5 MA's), (Start: 13 @55721 has 46 MA's), (Start: 19 @55640 has 206 MA's), (28, 55574), (29, 55553), (39, 55469), (44, 55343), (45, 55337), (48, 55292),

Gene: Xavier\_63 Start: 55082, Stop: 54726, Start Num: 19

Candidate Starts for Xavier\_63:

(4, 55370), (Start: 8 @55223 has 5 MA's), (Start: 13 @55163 has 46 MA's), (Start: 19 @55082 has 206 MA's), (28, 55016), (29, 54995), (39, 54911), (44, 54785), (45, 54779), (48, 54734),

Gene: Yoshand\_65 Start: 55368, Stop: 55012, Start Num: 19

Candidate Starts for Yoshand\_65:

(4, 55656), (Start: 8 @55509 has 5 MA's), (Start: 13 @55449 has 46 MA's), (Start: 19 @55368 has 206 MA's), (28, 55302), (39, 55197), (44, 55071), (45, 55065), (48, 55020),

Gene: YouGoGlencoco\_65 Start: 55320, Stop: 54964, Start Num: 19

Candidate Starts for YouGoGlencoco\_65:

(4, 55608), (Start: 8 @55461 has 5 MA's), (Start: 13 @55401 has 46 MA's), (Start: 19 @55320 has 206 MA's), (28, 55254), (29, 55233), (39, 55149), (44, 55023), (45, 55017), (48, 54972),

Gene: Zaider\_65 Start: 55561, Stop: 55205, Start Num: 19

Candidate Starts for Zaider\_65:

(4, 55849), (Start: 8 @55702 has 5 MA's), (Start: 13 @55642 has 46 MA's), (Start: 19 @55561 has 206 MA's), (28, 55495), (29, 55474), (39, 55390), (44, 55264), (45, 55258), (48, 55213),

Gene: Zelda\_65 Start: 55722, Stop: 55366, Start Num: 19

Candidate Starts for Zelda\_65:

(4, 56010), (Start: 8 @55863 has 5 MA's), (Start: 13 @55803 has 46 MA's), (Start: 19 @55722 has 206 MA's), (28, 55656), (29, 55635), (39, 55551), (44, 55425), (45, 55419), (48, 55374),

Gene: Zonia\_65 Start: 55730, Stop: 55293, Start Num: 13

Candidate Starts for Zonia\_65:

(4, 55937), (Start: 8 @55790 has 5 MA's), (Start: 13 @55730 has 46 MA's), (Start: 19 @55649 has 206 MA's), (28, 55583), (29, 55562), (39, 55478), (44, 55352), (45, 55346), (48, 55301),