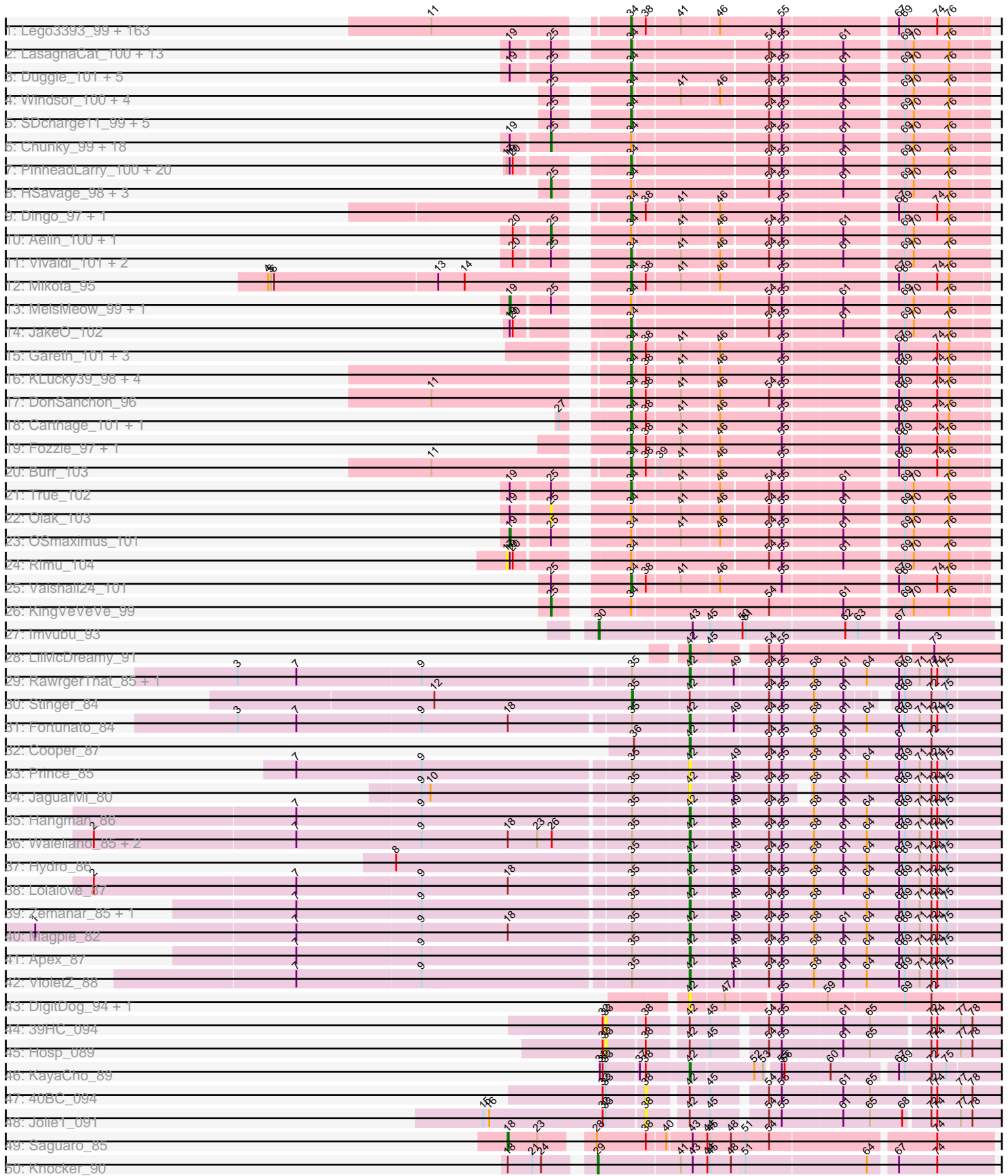
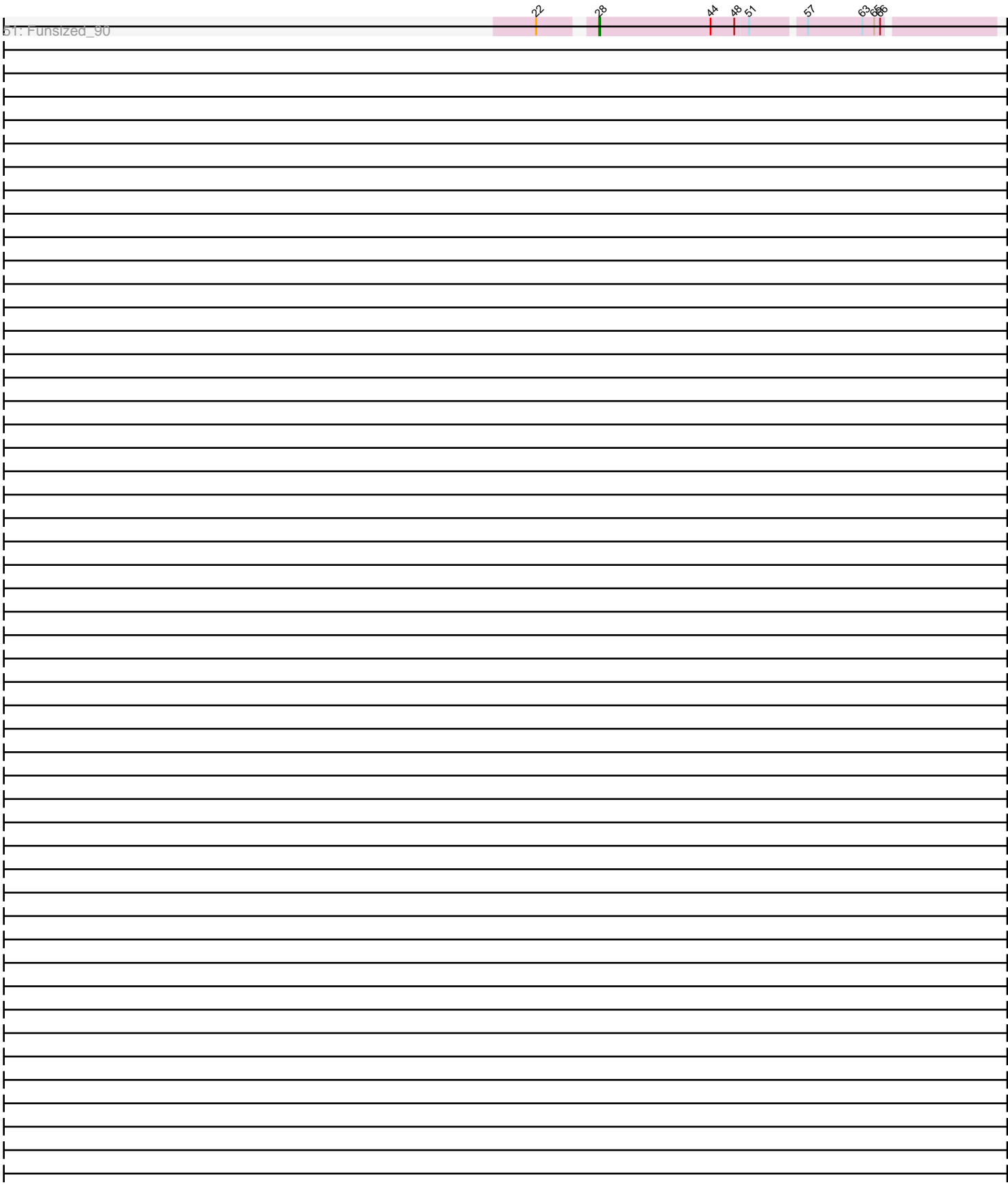


Pham 157523



Pham 157523



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 157523 Report

This analysis was run 04/13/24 on database version 558.

Pham number 157523 has 301 members, 34 are drafts.

Phages represented in each track:

- Track 1 : Lego3393\_99, Harvey\_98, Chah\_103, Placalicious\_98, Kikipoo\_103, Pherdinand\_102, Craff\_102, Xavier\_100, Kimbrough\_102, Giraffe\_102, Puhltonio\_96, Held\_99, Olive\_97, Quisquiliae\_102, Vista\_100, FugateOSU\_101, Jillium\_101, Usavi\_101, Boehler\_98, Selr12\_105, Hetaeria\_100, Zelda\_101, Orfeu\_101, Mulan\_100, Anderson\_102, Cobra\_101, Megatron\_102, Phipps\_98, Inverness\_98, Slatt\_103, Mecca\_101, Andre\_104, Adriana\_101, MitKao\_101, Phareon\_98, Squiggle\_100, Hertubise\_100, Phamished\_100, Emiris\_103, Waterdiva\_102, Lasso\_100, EmpTee\_100, ABU\_99, Mutante\_102, Podrick\_99, Kahve\_101, LemonSlice\_101, Simielle\_101, Scoot17C\_101, Buckeye\_99, Iridoclysis\_100, Beaglebox\_97, Legolas\_102, Bluephacebaby\_100, Prickles\_101, Dione\_99, UAch1\_101, Lumine\_102, Pacifista\_104, Haleema\_100, Numberten\_101, Oosterbaan\_101, Fang\_101, Haimas\_98, Roscoe\_99, Pipsqueak\_98, Freya\_97, Cosmolli16\_102, Morty\_101, UncleHowie\_97, Childish\_101, Katniss\_103, Frankicide\_98, Sigman\_100, Charles1\_104, FriarPreacher\_98, Dice\_101, Serpentine\_00103, Virapocalypse\_102, Maru\_100, Fringe\_105, Bishoperium\_101, LostAndPhound\_100, Altwerkus\_98, Chorkpop\_102, IsaacEli\_103, LuckyMarjie\_98, Scrick\_102, Serendipity\_100, Plmatters\_98, Nacho\_00103, MRabcd\_101, Thora\_99, ThreeOh3D2\_102, Cannibal\_101, ProfessorX\_98, Banjo\_97, JangoPhett\_99, YouGoGlencoco\_101, Mana\_98, Hamish\_98, Grand2040\_98, HenryJackson\_101, Badfish\_101, DoesntMatter\_98, Morgushi\_98, ShiVal\_100, HighStump\_103, Orion\_99, CheetO\_97, Timmi\_99, FluffyNinja\_102, Gophee\_100, Surely\_101, Valjean\_99, Lulumae\_96, Roy17\_98, Sophia\_99, Megamind20\_103, Squid\_100, JacAttac\_101, Swish\_102, Lulwa\_98, Colbert\_99, Skippy\_101, Mesh1\_101, Samaymay\_101, Vaticameos\_98, OliverWalter\_100, Mosaic\_98, BlackStallion\_100, Nicole21\_102, TomBombadil\_101, PG1\_99, Daffy\_100, SassyCat97\_99, PhrodoBaggins\_103, Nyala\_101, Matalotodo\_101, Spartan300\_100, Phunky\_98, Kwadwo\_100, DirtJuice\_102, KingTut\_91, Kloppinator\_101, QueenBeane\_101, Piglet\_00100, LeeLot\_99, AbsoluteMadLad\_99, CamL\_101, Gyarad\_0099, Tomlarah\_101, Omniscient\_102, Riggan\_102, Potter\_95, Yoshand\_102, Telesworld\_99, Zaidler\_102, Murdoc\_97, Newman\_96, Eugenia\_103, PhatCats2014\_100, Toni\_100, RedMaple\_99
- Track 2 : LasagnaCat\_100, ImtiyazSitla\_102, Ashraf\_102, DuchessDung\_98, Veritas\_100, Phleuron\_98, Inchworm\_102, Mag7\_99, Kwksand96\_102, Pinkman\_100, Maskar\_102, CampRoach\_100, Wallhey\_102, Kailash\_99
- Track 3 : Duggie\_101, Struggle\_101, Longacauda\_101, Jiminy\_101, KlimbOn\_100, DelRivs\_100
- Track 4 : Windsor\_100, Keitherie\_104, Chaelin\_101, Coletti\_103, Chute\_101

- Track 5 : SDcharge11\_99, BlueHusk\_101, Horchata\_95, Sheila\_95, Roliet\_98, Daka\_102
- Track 6 : Chunky\_99, PhenghisKhan\_101, Ricotta\_98, PhrankReynolds\_99, CharlieGBrown\_99, Mcshane\_103, TyrionL\_101, Gwilliam\_101, Schueller\_100, Labeouficaum\_101, BatteryCK\_99, Lopsy\_97, Derpp\_100, Apizium\_99, Hartsy\_97, Soile\_102, Phergie\_101, Zonia\_101, MichaelPhcott\_99
- Track 7 : PinheadLarry\_100, Durga\_103, Weher20\_98, GeneCoco\_100, LeiMonet\_103, Etaye\_100, Doddsville\_98, Virgeve\_99, Melc17\_98, Dati\_98, Hocus\_100, Swiphy\_105, DaddyDaniels\_104, PhatLouie\_103, Trypo\_101, JDog\_100, MrPhizzler\_100, Brilliant\_104, TallGrassMM\_100, Vortex\_99, Solosis\_99
- Track 8 : HSavage\_98, Eremos\_98, AltPhacts\_98, MiniBoss\_96
- Track 9 : Dingo\_97, Soto\_97
- Track 10 : Aelin\_100, Antonia\_100
- Track 11 : Vivaldi\_101, Manad\_100, Cornobble\_100
- Track 12 : Mikota\_95
- Track 13 : MelsMeow\_99, Oline\_100
- Track 14 : JakeO\_102
- Track 15 : Gareth\_101, Orwigg\_103, Tooj\_98, Cher\_101
- Track 16 : KLucky39\_98, Crownjwl\_98, Pops\_98, Suffolk\_96, Basato\_99
- Track 17 : DonSanchon\_96
- Track 18 : Carthage\_101, Robyn\_102
- Track 19 : Fozzie\_97, Schadenfreude\_101
- Track 20 : Burr\_103
- Track 21 : True\_102
- Track 22 : Olak\_103
- Track 23 : OSmaximus\_101
- Track 24 : Rimu\_104
- Track 25 : Vaishali24\_101
- Track 26 : KingVeVeVe\_99
- Track 27 : Imvubu\_93
- Track 28 : LilMcDreamy\_91
- Track 29 : RawrgerThat\_85, Mithril\_85
- Track 30 : Stinger\_84
- Track 31 : Fortunato\_84
- Track 32 : Cooper\_87
- Track 33 : Prince\_85
- Track 34 : JaguarMi\_80
- Track 35 : Hangman\_86
- Track 36 : Waleliano\_85, Mudslide\_86, BrownCNA\_87
- Track 37 : Hydro\_86
- Track 38 : Lolalove\_87
- Track 39 : Zemanar\_85, Frederick\_85
- Track 40 : Magpie\_82
- Track 41 : Apex\_87
- Track 42 : VioletZ\_88
- Track 43 : DigitDog\_94, Nangang\_93
- Track 44 : 39HC\_094
- Track 45 : Hosp\_089
- Track 46 : KayaCho\_89
- Track 47 : 40BC\_094
- Track 48 : Jolie1\_091
- Track 49 : Saguaro\_85
- Track 50 : Knocker\_90

- Track 51 : Funsized\_90

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

The start number called the most often in the published annotations is 34, it was called in 221 of the 267 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- ABU\_99, AbsoluteMadLad\_99, Adriana\_101, Altwerkus\_98, Anderson\_102, Andre\_104, Ashraf\_102, Badfish\_101, Banjo\_97, Basato\_99, Beaglebox\_97, Bishoperium\_101, BlackStallion\_100, BlueHusk\_101, Bluephacebaby\_100, Boehler\_98, Brilliant\_104, Buckeye\_99, Burr\_103, CamL\_101, CampRoach\_100, Cannibal\_101, Carthage\_101, Chaelin\_101, Chah\_103, Charles1\_104, CheetO\_97, Cher\_101, Childish\_101, Chorkpop\_102, Chute\_101, Cobra\_101, Colbert\_99, Coletti\_103, Cornobble\_100, Cosmolli16\_102, Craff\_102, Crownjwl\_98, DaddyDaniels\_104, Daffy\_100, Daka\_102, Dati\_98, DelRivs\_100, Dice\_101, Dingo\_97, Dione\_99, DirtJuice\_102, Doddsville\_98, DoesntMatter\_98, DonSanchon\_96, DuchessDung\_98, Duggie\_101, Durga\_103, Emiris\_103, EmpTee\_100, Etaye\_100, Eugenia\_103, Fang\_101, FluffyNinja\_102, Fozzie\_97, Frankicide\_98, Freya\_97, FriarPreacher\_98, Fringe\_105, FugateOSU\_101, Gareth\_101, GeneCoco\_100, Giraffe\_102, Gophee\_100, Grand2040\_98, Gyarad\_0099, Haimas\_98, Haleema\_100, Hamish\_98, Harvey\_98, Held\_99, HenryJackson\_101, Hertubise\_100, Hetaeria\_100, HighStump\_103, Hocus\_100, Horchata\_95, ImtiyazSitla\_102, Inchworm\_102, Inverness\_98, Iridoclysis\_100, IsaacEli\_103, JDog\_100, JacAttac\_101, JakeO\_102, JangoPhett\_99, Jillium\_101, Jiminy\_101, KLucky39\_98, Kahve\_101, Kailash\_99, Katniss\_103, Keitherie\_104, Kikipoo\_103, Kimbrough\_102, KingTut\_91, KlimbOn\_100, Kloppinator\_101, Kwadwo\_100, Kwksand96\_102, LasagnaCat\_100, Lasso\_100, LeeLot\_99, Lego3393\_99, Legolas\_102, LeiMonet\_103, LemonSlice\_101, Longacauda\_101, LostAndPhound\_100, LuckyMarjie\_98, Lulumae\_96, Lulwa\_98, Lumine\_102, MRabcd\_101, Mag7\_99, Mana\_98, Manad\_100, Maru\_100, Maskar\_102, Matalotodo\_101, Mecca\_101, Megamind20\_103, Megatron\_102, Melc17\_98, Mesh1\_101, Mikota\_95, MitKao\_101, Morgushi\_98, Morty\_101, Mosaic\_98, MrPhizzler\_100, Mulan\_100, Murdoc\_97, Mutante\_102, Nacho\_00103, Newman\_96, Nicole21\_102, Numberten\_101, Nyala\_101, Olive\_97, OliverWalter\_100, Omniscient\_102, Oosterbaan\_101, Orfeu\_101, Orion\_99, Orwig\_103, PG1\_99, Pacifista\_104, Phamished\_100, Phareon\_98, PhatCats2014\_100, PhatLouie\_103, Pherdinand\_102, Phipps\_98, Phleuron\_98, PhrodoBaggins\_103, Phunky\_98, Piglet\_00100, PinheadLarry\_100, Pinkman\_100, Pipsqueak\_98, Placalicious\_98, Plmatters\_98, Podrick\_99, Pops\_98, Potter\_95, Prickles\_101, ProfessorX\_98, Puhltonio\_96, QueenBeane\_101, Quisquilliae\_102, RedMaple\_99, Riggan\_102, Robyn\_102, Roliet\_98, Roscoe\_99, Roy17\_98, SDcharge11\_99, Samaymay\_101, SassyCat97\_99, Schadenfreude\_101, Scoot17C\_101, Scrick\_102, Selr12\_105, Serendipity\_100, Serpentine\_00103, Sheila\_95, ShiVal\_100, Sigman\_100, Simielle\_101, Skippy\_101, Slatt\_103, Solosis\_99, Sophia\_99, Soto\_97, Spartan300\_100, Squid\_100, Squiggle\_100, Struggle\_101, Suffolk\_96, Surely\_101, Swiphy\_105, Swish\_102, TallGrassMM\_100, Telesworld\_99, Thora\_99, ThreeOh3D2\_102, Timmi\_99, TomBombadil\_101, Tomlarah\_101, Toni\_100, Tooj\_98, True\_102, Trypo\_101, UAch1\_101, UncleHowie\_97, Usavi\_101, Vaishali24\_101, Valjean\_99, Vaticameos\_98, Veritas\_100, Virapocalypse\_102,

Virgeve\_99, Vista\_100, Vivaldi\_101, Vortex\_99, Wallhey\_102, Waterdiva\_102, Weher20\_98, Windsor\_100, Xavier\_100, Yoshand\_102, YouGoGlencoco\_101, Zaider\_102, Zelda\_101,

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

- Aelin\_100, AltPhacts\_98, Antonia\_100, Apizium\_99, BatteryCK\_99, CharlieGBrown\_99, Chunky\_99, Derpp\_100, Eremos\_98, Gwilliam\_101, HSavage\_98, Hartsy\_97, KingVeVeVe\_99, Labeouficaum\_101, Lopsy\_97, Mcshane\_103, MelsMeow\_99, MichaelPhcott\_99, MiniBoss\_96, OSmaximus\_101, Olak\_103, Oline\_100, PhenghisKhan\_101, Phergie\_101, PhrankReynolds\_99, Ricotta\_98, Rimu\_104, Schueller\_100, Soile\_102, TyrionL\_101, Zonia\_101,

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

- 39HC\_094, 40BC\_094, Apex\_87, BrownCNA\_87, Cooper\_87, DigitDog\_94, Fortunato\_84, Frederick\_85, Funsized\_90, Hangman\_86, Hosp\_089, Hydro\_86, Imvubu\_93, JaguarMi\_80, Jolie1\_091, KayaCho\_89, Knocker\_90, LiiMcDreamy\_91, Lolalove\_87, Magpie\_82, Mithril\_85, Mudslide\_86, Nangang\_93, Prince\_85, RawrgerThat\_85, Saguaro\_85, Stinger\_84, VioletZ\_88, Waleliano\_85, Zemanar\_85,

### Summary by start number:

Start 17:

- Found in 22 of 301 ( 7.3% ) of genes in pham
- No Manual Annotations of this start.
- Called 4.5% of time when present
- Phage (with cluster) where this start called: Rimu\_104 (B1),

Start 18:

- Found in 8 of 301 ( 2.7% ) of genes in pham
- Manual Annotations of this start: 1 of 267
- Called 12.5% of time when present
- Phage (with cluster) where this start called: Saguaro\_85 (B7),

Start 19:

- Found in 67 of 301 ( 22.3% ) of genes in pham
- Manual Annotations of this start: 3 of 267
- Called 4.5% of time when present
- Phage (with cluster) where this start called: MelsMeow\_99 (B1), OSmaximus\_101 (B1), Oline\_100 (B1),

Start 25:

- Found in 66 of 301 ( 21.9% ) of genes in pham
- Manual Annotations of this start: 22 of 267
- Called 40.9% of time when present
- Phage (with cluster) where this start called: Aelin\_100 (B1), AltPhacts\_98 (B1), Antonia\_100 (B1), Apizium\_99 (B1), BatteryCK\_99 (B1), CharlieGBrown\_99 (B1), Chunky\_99 (B1), Derpp\_100 (B1), Eremos\_98 (B1), Gwilliam\_101 (B1), HSavage\_98 (B1), Hartsy\_97 (B1), KingVeVeVe\_99 (B1), Labeouficaum\_101 (B1), Lopsy\_97 (B1), Mcshane\_103 (B1), MichaelPhcott\_99 (B1), MiniBoss\_96 (B1), Olak\_103 (B1), PhenghisKhan\_101 (B1), Phergie\_101 (B1), PhrankReynolds\_99 (B1), Ricotta\_98 (B1), Schueller\_100 (B1), Soile\_102 (B1), TyrionL\_101 (B1), Zonia\_101 (B1),

Start 28:

- Found in 2 of 301 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 267
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Funsized\_90 (B9),

#### Start 29:

- Found in 1 of 301 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 267
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Knocker\_90 (B9),

#### Start 30:

- Found in 1 of 301 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 267
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Imvubu\_93 (B10),

#### Start 33:

- Found in 5 of 301 ( 1.7% ) of genes in pham
- No Manual Annotations of this start.
- Called 40.0% of time when present
- Phage (with cluster) where this start called: 39HC\_094 (B6), Hosp\_089 (B6),

#### Start 34:

- Found in 271 of 301 ( 90.0% ) of genes in pham
- Manual Annotations of this start: 221 of 267
- Called 88.6% of time when present
- Phage (with cluster) where this start called: ABU\_99 (B1), AbsoluteMadLad\_99 (B1), Adriana\_101 (B1), Altwerkus\_98 (B1), Anderson\_102 (B1), Andre\_104 (B1), Ashraf\_102 (B1), Badfish\_101 (B1), Banjo\_97 (B1), Basato\_99 (B1), Beaglebox\_97 (B1), Bishoperium\_101 (B1), BlackStallion\_100 (B1), BlueHusk\_101 (B1), Bluephacebaby\_100 (B1), Boehler\_98 (B1), Brilliant\_104 (B1), Buckeye\_99 (B1), Burr\_103 (B1), CamL\_101 (B1), CampRoach\_100 (B1), Cannibal\_101 (B1), Carthage\_101 (B1), Chaelin\_101 (B1), Chah\_103 (B1), Charles1\_104 (B1), CheetO\_97 (B1), Cher\_101 (B1), Childish\_101 (B1), Chorkpop\_102 (B1), Chute\_101 (B1), Cobra\_101 (B1), Colbert\_99 (B1), Coletti\_103 (B1), Cornobble\_100 (B1), Cosmolli16\_102 (B1), Craff\_102 (B1), Crownjwl\_98 (B1), DaddyDaniels\_104 (B1), Daffy\_100 (B1), Daka\_102 (B1), Dati\_98 (B1), DelRivs\_100 (B1), Dice\_101 (B1), Dingo\_97 (B1), Dione\_99 (B1), DirtJuice\_102 (B1), Doddsville\_98 (B1), DoesntMatter\_98 (B1), DonSanchon\_96 (B1), DuchessDung\_98 (B1), Duggie\_101 (B1), Durga\_103 (B1), Emiris\_103 (B1), EmpTee\_100 (B1), Etaye\_100 (B1), Eugenia\_103 (B1), Fang\_101 (B1), FluffyNinja\_102 (B1), Fozzie\_97 (B1), Frankicide\_98 (B1), Freya\_97 (B1), FriarPreacher\_98 (B1), Fringe\_105 (B1), FugateOSU\_101 (B1), Gareth\_101 (B1), GeneCoco\_100 (B1), Giraffe\_102 (B1), Gophee\_100 (B1), Grand2040\_98 (B1), Gyarad\_0099 (B1), Haimas\_98 (B1), Haleema\_100 (B1), Hamish\_98 (B1), Harvey\_98 (B1), Held\_99 (B1), HenryJackson\_101 (B1), Hertubise\_100 (B1), Hetaeria\_100 (B1), HighStump\_103 (B1), Hocus\_100 (B1), Horchata\_95 (B1), ImtiyazSitla\_102 (B1), Inchworm\_102 (B1), Inverness\_98 (B1), Iridoclysis\_100 (B1), IsaacEli\_103 (B1), JDog\_100 (B1), JacAttac\_101 (B1), JakeO\_102 (B1), JangoPhett\_99 (B1), Jillium\_101 (B1), Jiminy\_101 (B1), KLucky39\_98 (B1), Kahve\_101 (B1), Kailash\_99 (B1), Katniss\_103 (B1), Keitherie\_104 (B1), Kikipoo\_103 (B1), Kimbrough\_102 (B1), KingTut\_91 (B1), KlimbOn\_100 (B1), Kloppinator\_101 (B1), Kwadwo\_100 (B1), Kwksand96\_102 (B1),

LasagnaCat\_100 (B1), Lasso\_100 (B1), LeeLot\_99 (B1), Lego3393\_99 (B1), Legolas\_102 (B1), LeiMonet\_103 (B1), LemonSlice\_101 (B1), Longacauda\_101 (B1), LostAndPhound\_100 (B1), LuckyMarjie\_98 (B1), Lulumae\_96 (B1), Lulwa\_98 (B1), Lumine\_102 (B1), MRabcd\_101 (B1), Mag7\_99 (B1), Mana\_98 (B1), Manad\_100 (B1), Maru\_100 (B1), Maskar\_102 (B1), Matalotodo\_101 (B1), Mecca\_101 (B1), Megamind20\_103 (B1), Megatron\_102 (B1), Melc17\_98 (B1), Mesh1\_101 (B1), Mikota\_95 (B1), MitKao\_101 (B1), Morgushi\_98 (B1), Morty\_101 (B1), Mosaic\_98 (B1), MrPhizzler\_100 (B1), Mulan\_100 (B1), Murdoc\_97 (B1), Mutante\_102 (B1), Nacho\_00103 (B1), Newman\_96 (B1), Nicole21\_102 (B1), Numberten\_101 (B1), Nyala\_101 (B1), Olive\_97 (B1), OliverWalter\_100 (B1), Omniscient\_102 (B1), Oosterbaan\_101 (B1), Orfeu\_101 (B1), Orion\_99 (B1), Orwigg\_103 (B1), PG1\_99 (B1), Pacifista\_104 (B1), Phamished\_100 (B1), Phareon\_98 (B1), PhatCats2014\_100 (B1), PhatLouie\_103 (B1), Pherdinand\_102 (B1), Phipps\_98 (B1), Phleuron\_98 (B1), PhrodoBaggins\_103 (B1), Phunky\_98 (B1), Piglet\_00100 (B1), PinheadLarry\_100 (B1), Pinkman\_100 (B1), Pipsqueak\_98 (B1), Placalicious\_98 (B1), Plmatters\_98 (B1), Podrick\_99 (B1), Pops\_98 (B1), Potter\_95 (B1), Prickles\_101 (B1), ProfessorX\_98 (B1), Puhltonio\_96 (B1), QueenBeane\_101 (B1), Quisquiliae\_102 (B1), RedMaple\_99 (B1), Riggan\_102 (B1), Robyn\_102 (B1), Roliet\_98 (B1), Roscoe\_99 (B1), Roy17\_98 (B1), SDcharge11\_99 (B1), Samaymay\_101 (B1), SassyCat97\_99 (B1), Schadenfreude\_101 (B1), Scoot17C\_101 (B1), Scrick\_102 (B1), Selr12\_105 (B1), Serendipity\_100 (B1), Serpentine\_00103 (B1), Sheila\_95 (B1), ShiVal\_100 (B1), Sigman\_100 (B1), Simielle\_101 (B1), Skippy\_101 (B1), Slatt\_103 (B1), Solosis\_99 (B1), Sophia\_99 (B1), Soto\_97 (B1), Spartan300\_100 (B1), Squid\_100 (B1), Squiggle\_100 (B1), Struggle\_101 (B1), Suffolk\_96 (B1), Surely\_101 (B1), Swiphy\_105 (B1), Swish\_102 (B1), TallGrassMM\_100 (B1), Telesworld\_99 (B1), Thora\_99 (B1), ThreeOh3D2\_102 (B1), Timmi\_99 (B1), TomBombadil\_101 (B1), Tomlarah\_101 (B1), Toni\_100 (B1), Tooj\_98 (B1), True\_102 (B1), Trypo\_101 (B1), UAch1\_101 (B1), UncleHowie\_97 (B1), Usavi\_101 (B1), Vaishali24\_101 (B1), Valjean\_99 (B1), Vaticameos\_98 (B1), Veritas\_100 (B1), Virapocalypse\_102 (B1), Virgeve\_99 (B1), Vista\_100 (B1), Vivaldi\_101 (B1), Vortex\_99 (B1), Wallhey\_102 (B1), Waterdiva\_102 (B1), Weher20\_98 (B1), Windsor\_100 (B1), Xavier\_100 (B1), Yoshand\_102 (B1), YouGoGlencoco\_101 (B1), Zaider\_102 (B1), Zelda\_101 (B1),

#### Start 35:

- Found in 17 of 301 ( 5.6% ) of genes in pham
- Manual Annotations of this start: 1 of 267
- Called 5.9% of time when present
- Phage (with cluster) where this start called: Stinger\_84 (B4),

#### Start 38:

- Found in 189 of 301 ( 62.8% ) of genes in pham
- No Manual Annotations of this start.
- Called 1.1% of time when present
- Phage (with cluster) where this start called: 40BC\_094 (B6), Jolie1\_091 (B6),

#### Start 42:

- Found in 26 of 301 ( 8.6% ) of genes in pham
- Manual Annotations of this start: 16 of 267
- Called 80.8% of time when present
- Phage (with cluster) where this start called: Apex\_87 (B4), BrownCNA\_87 (B4), Cooper\_87 (B4), DigitDog\_94 (B5), Fortunato\_84 (B4), Frederick\_85 (B4), Hangman\_86 (B4), Hydro\_86 (B4), JaguarMi\_80 (B4), KayaCho\_89 (B6),



LilMcDreamy\_91 (B12), Lolalove\_87 (B4), Magpie\_82 (B4), Mithril\_85 (B4), Mudslide\_86 (B4), Nangang\_93 (B5), Prince\_85 (B4), RawrgerThat\_85 (B4), VioletZ\_88 (B4), Waleliano\_85 (B4), Zemanar\_85 (B4),

### **Summary by clusters:**

There are 8 clusters represented in this pham: B4, B5, B6, B7, B12, B1, B10, B9,

Info for manual annotations of cluster B1:

- Start number 19 was manually annotated 3 times for cluster B1.
- Start number 25 was manually annotated 22 times for cluster B1.
- Start number 34 was manually annotated 221 times for cluster B1.

Info for manual annotations of cluster B10:

- Start number 30 was manually annotated 1 time for cluster B10.

Info for manual annotations of cluster B12:

- Start number 42 was manually annotated 1 time for cluster B12.

Info for manual annotations of cluster B4:

- Start number 35 was manually annotated 1 time for cluster B4.
- Start number 42 was manually annotated 14 times for cluster B4.

Info for manual annotations of cluster B6:

- Start number 42 was manually annotated 1 time for cluster B6.

Info for manual annotations of cluster B7:

- Start number 18 was manually annotated 1 time for cluster B7.

Info for manual annotations of cluster B9:

- Start number 28 was manually annotated 1 time for cluster B9.
- Start number 29 was manually annotated 1 time for cluster B9.

### **Gene Information:**

Gene: 39HC\_094 Start: 68290, Stop: 67925, Start Num: 33

Candidate Starts for 39HC\_094:

(32, 68293), (33, 68290), (38, 68254), (Start: 42 @68218 has 16 MA's), (45, 68197), (54, 68149), (55, 68137), (61, 68080), (65, 68053), (72, 67996), (74, 67990), (77, 67966), (78, 67954),

Gene: 40BC\_094 Start: 68254, Stop: 67925, Start Num: 38

Candidate Starts for 40BC\_094:

(32, 68293), (33, 68290), (38, 68254), (Start: 42 @68218 has 16 MA's), (45, 68197), (54, 68149), (55, 68137), (61, 68080), (65, 68053), (72, 67996), (74, 67990), (77, 67966), (78, 67954),

Gene: ABU\_99 Start: 68479, Stop: 68141, Start Num: 34

Candidate Starts for ABU\_99:

(11, 68653), (Start: 34 @68479 has 221 MA's), (38, 68464), (41, 68431), (46, 68395), (55, 68335), (67, 68230), (69, 68224), (74, 68191), (76, 68179),

Gene: AbsoluteMadLad\_99 Start: 68432, Stop: 68094, Start Num: 34

Candidate Starts for AbsoluteMadLad\_99:

(11, 68606), (Start: 34 @68432 has 221 MA's), (38, 68417), (41, 68384), (46, 68348), (55, 68288), (67, 68183), (69, 68177), (74, 68144), (76, 68132),

Gene: Adriana\_101 Start: 68751, Stop: 68413, Start Num: 34

Candidate Starts for Adriana\_101:

(11, 68925), (Start: 34 @68751 has 221 MA's), (38, 68736), (41, 68703), (46, 68667), (55, 68607), (67, 68502), (69, 68496), (74, 68463), (76, 68451),

Gene: Aelin\_100 Start: 68163, Stop: 67771, Start Num: 25

Candidate Starts for Aelin\_100:

(20, 68196), (Start: 25 @68163 has 22 MA's), (Start: 34 @68106 has 221 MA's), (41, 68061), (46, 68025), (54, 67980), (55, 67968), (61, 67911), (69, 67857), (70, 67848), (76, 67812),

Gene: AltPhacts\_98 Start: 67737, Stop: 67345, Start Num: 25

Candidate Starts for AltPhacts\_98:

(Start: 25 @67737 has 22 MA's), (Start: 34 @67680 has 221 MA's), (54, 67551), (55, 67539), (61, 67482), (69, 67428), (70, 67419), (76, 67383),

Gene: Altwerkus\_98 Start: 67808, Stop: 67470, Start Num: 34

Candidate Starts for Altwerkus\_98:

(11, 67982), (Start: 34 @67808 has 221 MA's), (38, 67793), (41, 67760), (46, 67724), (55, 67664), (67, 67559), (69, 67553), (74, 67520), (76, 67508),

Gene: Anderson\_102 Start: 68355, Stop: 68017, Start Num: 34

Candidate Starts for Anderson\_102:

(11, 68529), (Start: 34 @68355 has 221 MA's), (38, 68340), (41, 68307), (46, 68271), (55, 68211), (67, 68106), (69, 68100), (74, 68067), (76, 68055),

Gene: Andre\_104 Start: 68746, Stop: 68408, Start Num: 34

Candidate Starts for Andre\_104:

(11, 68920), (Start: 34 @68746 has 221 MA's), (38, 68731), (41, 68698), (46, 68662), (55, 68602), (67, 68497), (69, 68491), (74, 68458), (76, 68446),

Gene: Antonia\_100 Start: 68034, Stop: 67642, Start Num: 25

Candidate Starts for Antonia\_100:

(20, 68067), (Start: 25 @68034 has 22 MA's), (Start: 34 @67977 has 221 MA's), (41, 67932), (46, 67896), (54, 67851), (55, 67839), (61, 67782), (69, 67728), (70, 67719), (76, 67683),

Gene: Apex\_87 Start: 66047, Stop: 65745, Start Num: 42

Candidate Starts for Apex\_87:

(7, 66434), (9, 66308), (Start: 35 @66104 has 1 MA's), (Start: 42 @66047 has 16 MA's), (49, 66005), (54, 65972), (55, 65960), (58, 65930), (61, 65903), (64, 65879), (67, 65846), (69, 65840), (71, 65825), (72, 65813), (74, 65807), (75, 65798),

Gene: Apizium\_99 Start: 67685, Stop: 67293, Start Num: 25

Candidate Starts for Apizium\_99:

(Start: 19 @67721 has 3 MA's), (Start: 25 @67685 has 22 MA's), (Start: 34 @67628 has 221 MA's), (54, 67499), (55, 67487), (61, 67430), (69, 67376), (70, 67367), (76, 67331),

Gene: Ashraf\_102 Start: 68483, Stop: 68148, Start Num: 34

Candidate Starts for Ashraf\_102:

(Start: 19 @68576 has 3 MA's), (Start: 25 @68540 has 22 MA's), (Start: 34 @68483 has 221 MA's), (54, 68354), (55, 68342), (61, 68285), (69, 68231), (70, 68222), (76, 68186),

Gene: Badfish\_101 Start: 68659, Stop: 68321, Start Num: 34

Candidate Starts for Badfish\_101:

(11, 68833), (Start: 34 @68659 has 221 MA's), (38, 68644), (41, 68611), (46, 68575), (55, 68515), (67, 68410), (69, 68404), (74, 68371), (76, 68359),

Gene: Banjo\_97 Start: 67925, Stop: 67587, Start Num: 34

Candidate Starts for Banjo\_97:

(11, 68099), (Start: 34 @67925 has 221 MA's), (38, 67910), (41, 67877), (46, 67841), (55, 67781), (67, 67676), (69, 67670), (74, 67637), (76, 67625),

Gene: Basato\_99 Start: 68145, Stop: 67807, Start Num: 34

Candidate Starts for Basato\_99:

(Start: 34 @68145 has 221 MA's), (38, 68130), (41, 68097), (46, 68061), (55, 68001), (67, 67896), (69, 67890), (74, 67857), (76, 67845),

Gene: BatteryCK\_99 Start: 67967, Stop: 67575, Start Num: 25

Candidate Starts for BatteryCK\_99:

(Start: 19 @68003 has 3 MA's), (Start: 25 @67967 has 22 MA's), (Start: 34 @67910 has 221 MA's), (54, 67781), (55, 67769), (61, 67712), (69, 67658), (70, 67649), (76, 67613),

Gene: Beaglebox\_97 Start: 68047, Stop: 67709, Start Num: 34

Candidate Starts for Beaglebox\_97:

(11, 68221), (Start: 34 @68047 has 221 MA's), (38, 68032), (41, 67999), (46, 67963), (55, 67903), (67, 67798), (69, 67792), (74, 67759), (76, 67747),

Gene: Bishoperium\_101 Start: 68494, Stop: 68156, Start Num: 34

Candidate Starts for Bishoperium\_101:

(11, 68668), (Start: 34 @68494 has 221 MA's), (38, 68479), (41, 68446), (46, 68410), (55, 68350), (67, 68245), (69, 68239), (74, 68206), (76, 68194),

Gene: BlackStallion\_100 Start: 68343, Stop: 68005, Start Num: 34

Candidate Starts for BlackStallion\_100:

(11, 68517), (Start: 34 @68343 has 221 MA's), (38, 68328), (41, 68295), (46, 68259), (55, 68199), (67, 68094), (69, 68088), (74, 68055), (76, 68043),

Gene: BlueHusk\_101 Start: 67823, Stop: 67488, Start Num: 34

Candidate Starts for BlueHusk\_101:

(Start: 25 @67880 has 22 MA's), (Start: 34 @67823 has 221 MA's), (54, 67694), (55, 67682), (61, 67625), (69, 67571), (70, 67562), (76, 67526),

Gene: Bluephacebaby\_100 Start: 68528, Stop: 68190, Start Num: 34

Candidate Starts for Bluephacebaby\_100:

(11, 68702), (Start: 34 @68528 has 221 MA's), (38, 68513), (41, 68480), (46, 68444), (55, 68384), (67, 68279), (69, 68273), (74, 68240), (76, 68228),

Gene: Boehler\_98 Start: 67970, Stop: 67632, Start Num: 34

Candidate Starts for Boehler\_98:

(11, 68144), (Start: 34 @67970 has 221 MA's), (38, 67955), (41, 67922), (46, 67886), (55, 67826), (67, 67721), (69, 67715), (74, 67682), (76, 67670),

Gene: Brilliant\_104 Start: 68501, Stop: 68166, Start Num: 34

Candidate Starts for Brilliant\_104:

(17, 68594), (Start: 19 @68591 has 3 MA's), (20, 68588), (Start: 34 @68501 has 221 MA's), (54, 68372), (55, 68360), (61, 68303), (69, 68249), (70, 68240), (76, 68204),

Gene: BrownCNA\_87 Start: 65995, Stop: 65693, Start Num: 42

Candidate Starts for BrownCNA\_87:

(2, 66586), (7, 66382), (9, 66256), (Start: 18 @66169 has 1 MA's), (23, 66139), (26, 66124), (Start: 35 @66052 has 1 MA's), (Start: 42 @65995 has 16 MA's), (49, 65953), (54, 65920), (55, 65908), (58, 65878), (61, 65851), (64, 65827), (67, 65794), (69, 65788), (71, 65773), (72, 65761), (74, 65755), (75, 65746),

Gene: Buckeye\_99 Start: 68803, Stop: 68465, Start Num: 34

Candidate Starts for Buckeye\_99:

(11, 68977), (Start: 34 @68803 has 221 MA's), (38, 68788), (41, 68755), (46, 68719), (55, 68659), (67, 68554), (69, 68548), (74, 68515), (76, 68503),

Gene: Burr\_103 Start: 68349, Stop: 68011, Start Num: 34

Candidate Starts for Burr\_103:

(11, 68523), (Start: 34 @68349 has 221 MA's), (38, 68334), (39, 68322), (41, 68301), (46, 68265), (55, 68205), (67, 68100), (69, 68094), (74, 68061), (76, 68049),

Gene: CamL\_101 Start: 68279, Stop: 67941, Start Num: 34

Candidate Starts for CamL\_101:

(11, 68453), (Start: 34 @68279 has 221 MA's), (38, 68264), (41, 68231), (46, 68195), (55, 68135), (67, 68030), (69, 68024), (74, 67991), (76, 67979),

Gene: CampRoach\_100 Start: 68369, Stop: 68034, Start Num: 34

Candidate Starts for CampRoach\_100:

(Start: 19 @68462 has 3 MA's), (Start: 25 @68426 has 22 MA's), (Start: 34 @68369 has 221 MA's), (54, 68240), (55, 68228), (61, 68171), (69, 68117), (70, 68108), (76, 68072),

Gene: Cannibal\_101 Start: 68382, Stop: 68044, Start Num: 34

Candidate Starts for Cannibal\_101:

(11, 68556), (Start: 34 @68382 has 221 MA's), (38, 68367), (41, 68334), (46, 68298), (55, 68238), (67, 68133), (69, 68127), (74, 68094), (76, 68082),

Gene: Carthage\_101 Start: 67837, Stop: 67499, Start Num: 34

Candidate Starts for Carthage\_101:

(27, 67882), (Start: 34 @67837 has 221 MA's), (38, 67822), (41, 67789), (46, 67753), (55, 67693), (67, 67588), (69, 67582), (74, 67549), (76, 67537),

Gene: Chaelin\_101 Start: 68242, Stop: 67910, Start Num: 34

Candidate Starts for Chaelin\_101:

(Start: 25 @68299 has 22 MA's), (Start: 34 @68242 has 221 MA's), (41, 68197), (46, 68161), (54, 68116), (55, 68104), (61, 68047), (69, 67993), (70, 67984), (76, 67948),

Gene: Chah\_103 Start: 68079, Stop: 67741, Start Num: 34

Candidate Starts for Chah\_103:

(11, 68253), (Start: 34 @68079 has 221 MA's), (38, 68064), (41, 68031), (46, 67995), (55, 67935), (67, 67830), (69, 67824), (74, 67791), (76, 67779),

Gene: Charles1\_104 Start: 68657, Stop: 68319, Start Num: 34

Candidate Starts for Charles1\_104:

(11, 68831), (Start: 34 @68657 has 221 MA's), (38, 68642), (41, 68609), (46, 68573), (55, 68513), (67, 68408), (69, 68402), (74, 68369), (76, 68357),

Gene: CharlieGBrown\_99 Start: 68062, Stop: 67670, Start Num: 25

Candidate Starts for CharlieGBrown\_99:

(Start: 19 @68098 has 3 MA's), (Start: 25 @68062 has 22 MA's), (Start: 34 @68005 has 221 MA's), (54, 67876), (55, 67864), (61, 67807), (69, 67753), (70, 67744), (76, 67708),

Gene: CheetO\_97 Start: 68132, Stop: 67794, Start Num: 34

Candidate Starts for CheetO\_97:

(11, 68306), (Start: 34 @68132 has 221 MA's), (38, 68117), (41, 68084), (46, 68048), (55, 67988), (67, 67883), (69, 67877), (74, 67844), (76, 67832),

Gene: Cher\_101 Start: 68483, Stop: 68145, Start Num: 34

Candidate Starts for Cher\_101:

(Start: 34 @68483 has 221 MA's), (38, 68468), (41, 68435), (46, 68399), (55, 68339), (67, 68234), (69, 68228), (74, 68195), (76, 68183),

Gene: Childish\_101 Start: 68673, Stop: 68335, Start Num: 34

Candidate Starts for Childish\_101:

(11, 68847), (Start: 34 @68673 has 221 MA's), (38, 68658), (41, 68625), (46, 68589), (55, 68529), (67, 68424), (69, 68418), (74, 68385), (76, 68373),

Gene: Chorkpop\_102 Start: 68135, Stop: 67797, Start Num: 34

Candidate Starts for Chorkpop\_102:

(11, 68309), (Start: 34 @68135 has 221 MA's), (38, 68120), (41, 68087), (46, 68051), (55, 67991), (67, 67886), (69, 67880), (74, 67847), (76, 67835),

Gene: Chunky\_99 Start: 67707, Stop: 67291, Start Num: 25

Candidate Starts for Chunky\_99:

(Start: 19 @67743 has 3 MA's), (Start: 25 @67707 has 22 MA's), (Start: 34 @67626 has 221 MA's), (54, 67497), (55, 67485), (61, 67428), (69, 67374), (70, 67365), (76, 67329),

Gene: Chute\_101 Start: 68665, Stop: 68333, Start Num: 34

Candidate Starts for Chute\_101:

(Start: 25 @68722 has 22 MA's), (Start: 34 @68665 has 221 MA's), (41, 68620), (46, 68584), (54, 68539), (55, 68527), (61, 68470), (69, 68416), (70, 68407), (76, 68371),

Gene: Cobra\_101 Start: 68504, Stop: 68166, Start Num: 34

Candidate Starts for Cobra\_101:

(11, 68678), (Start: 34 @68504 has 221 MA's), (38, 68489), (41, 68456), (46, 68420), (55, 68360), (67, 68255), (69, 68249), (74, 68216), (76, 68204),

Gene: Colbert\_99 Start: 67403, Stop: 67065, Start Num: 34

Candidate Starts for Colbert\_99:

(11, 67577), (Start: 34 @67403 has 221 MA's), (38, 67388), (41, 67355), (46, 67319), (55, 67259), (67, 67154), (69, 67148), (74, 67115), (76, 67103),

Gene: Coletti\_103 Start: 69021, Stop: 68689, Start Num: 34

Candidate Starts for Coletti\_103:

(Start: 25 @69078 has 22 MA's), (Start: 34 @69021 has 221 MA's), (41, 68976), (46, 68940), (54, 68895), (55, 68883), (61, 68826), (69, 68772), (70, 68763), (76, 68727),

Gene: Cooper\_87 Start: 65343, Stop: 65047, Start Num: 42

Candidate Starts for Cooper\_87:

(36, 65397), (Start: 42 @65343 has 16 MA's), (54, 65268), (55, 65256), (58, 65226), (61, 65199), (67, 65145), (72, 65112),

Gene: Cornobble\_100 Start: 68126, Stop: 67791, Start Num: 34

Candidate Starts for Cornobble\_100:

(20, 68216), (Start: 25 @68183 has 22 MA's), (Start: 34 @68126 has 221 MA's), (41, 68081), (46, 68045), (54, 68000), (55, 67988), (61, 67931), (69, 67877), (70, 67868), (76, 67832),

Gene: Cosmolli16\_102 Start: 68607, Stop: 68269, Start Num: 34

Candidate Starts for Cosmolli16\_102:

(11, 68781), (Start: 34 @68607 has 221 MA's), (38, 68592), (41, 68559), (46, 68523), (55, 68463), (67, 68358), (69, 68352), (74, 68319), (76, 68307),

Gene: Craff\_102 Start: 68892, Stop: 68554, Start Num: 34

Candidate Starts for Craff\_102:

(11, 69066), (Start: 34 @68892 has 221 MA's), (38, 68877), (41, 68844), (46, 68808), (55, 68748), (67, 68643), (69, 68637), (74, 68604), (76, 68592),

Gene: Crownjwl\_98 Start: 68148, Stop: 67810, Start Num: 34

Candidate Starts for Crownjwl\_98:

(Start: 34 @68148 has 221 MA's), (38, 68133), (41, 68100), (46, 68064), (55, 68004), (67, 67899), (69, 67893), (74, 67860), (76, 67848),

Gene: DaddyDaniels\_104 Start: 68620, Stop: 68285, Start Num: 34

Candidate Starts for DaddyDaniels\_104:

(17, 68713), (Start: 19 @68710 has 3 MA's), (20, 68707), (Start: 34 @68620 has 221 MA's), (54, 68491), (55, 68479), (61, 68422), (69, 68368), (70, 68359), (76, 68323),

Gene: Daffy\_100 Start: 68120, Stop: 67782, Start Num: 34

Candidate Starts for Daffy\_100:

(11, 68294), (Start: 34 @68120 has 221 MA's), (38, 68105), (41, 68072), (46, 68036), (55, 67976), (67, 67871), (69, 67865), (74, 67832), (76, 67820),

Gene: Daka\_102 Start: 68077, Stop: 67742, Start Num: 34

Candidate Starts for Daka\_102:

(Start: 25 @68134 has 22 MA's), (Start: 34 @68077 has 221 MA's), (54, 67948), (55, 67936), (61, 67879), (69, 67825), (70, 67816), (76, 67780),

Gene: Dati\_98 Start: 68299, Stop: 67964, Start Num: 34

Candidate Starts for Dati\_98:

(17, 68392), (Start: 19 @68389 has 3 MA's), (20, 68386), (Start: 34 @68299 has 221 MA's), (54, 68170), (55, 68158), (61, 68101), (69, 68047), (70, 68038), (76, 68002),

Gene: DelRivs\_100 Start: 67928, Stop: 67593, Start Num: 34

Candidate Starts for DelRivs\_100:

(Start: 19 @68045 has 3 MA's), (Start: 25 @68009 has 22 MA's), (Start: 34 @67928 has 221 MA's), (54, 67799), (55, 67787), (61, 67730), (69, 67676), (70, 67667), (76, 67631),

Gene: Derpp\_100 Start: 68095, Stop: 67703, Start Num: 25

Candidate Starts for Derpp\_100:

(Start: 19 @68131 has 3 MA's), (Start: 25 @68095 has 22 MA's), (Start: 34 @68038 has 221 MA's), (54, 67909), (55, 67897), (61, 67840), (69, 67786), (70, 67777), (76, 67741),

Gene: Dice\_101 Start: 67966, Stop: 67628, Start Num: 34

Candidate Starts for Dice\_101:

(11, 68140), (Start: 34 @67966 has 221 MA's), (38, 67951), (41, 67918), (46, 67882), (55, 67822), (67, 67717), (69, 67711), (74, 67678), (76, 67666),

Gene: DigitDog\_94 Start: 68274, Stop: 67966, Start Num: 42

Candidate Starts for DigitDog\_94:

(Start: 42 @68274 has 16 MA's), (47, 68241), (55, 68193), (59, 68151), (69, 68076), (72, 68049),

Gene: Dingo\_97 Start: 67408, Stop: 67070, Start Num: 34

Candidate Starts for Dingo\_97:

(Start: 34 @67408 has 221 MA's), (38, 67393), (41, 67360), (46, 67324), (55, 67264), (67, 67159), (69, 67153), (74, 67120), (76, 67108),

Gene: Dione\_99 Start: 67686, Stop: 67348, Start Num: 34

Candidate Starts for Dione\_99:

(11, 67860), (Start: 34 @67686 has 221 MA's), (38, 67671), (41, 67638), (46, 67602), (55, 67542), (67, 67437), (69, 67431), (74, 67398), (76, 67386),

Gene: DirtJuice\_102 Start: 68795, Stop: 68457, Start Num: 34

Candidate Starts for DirtJuice\_102:

(11, 68969), (Start: 34 @68795 has 221 MA's), (38, 68780), (41, 68747), (46, 68711), (55, 68651), (67, 68546), (69, 68540), (74, 68507), (76, 68495),

Gene: Doddsville\_98 Start: 68120, Stop: 67785, Start Num: 34

Candidate Starts for Doddsville\_98:

(17, 68213), (Start: 19 @68210 has 3 MA's), (20, 68207), (Start: 34 @68120 has 221 MA's), (54, 67991), (55, 67979), (61, 67922), (69, 67868), (70, 67859), (76, 67823),

Gene: DoesntMatter\_98 Start: 67960, Stop: 67622, Start Num: 34

Candidate Starts for DoesntMatter\_98:

(11, 68134), (Start: 34 @67960 has 221 MA's), (38, 67945), (41, 67912), (46, 67876), (55, 67816), (67, 67711), (69, 67705), (74, 67672), (76, 67660),

Gene: DonSanchon\_96 Start: 67644, Stop: 67306, Start Num: 34

Candidate Starts for DonSanchon\_96:

(11, 67818), (Start: 34 @67644 has 221 MA's), (38, 67629), (41, 67596), (46, 67560), (54, 67512), (55, 67500), (67, 67395), (69, 67389), (74, 67356), (76, 67344),

Gene: DuchessDung\_98 Start: 67636, Stop: 67301, Start Num: 34

Candidate Starts for DuchessDung\_98:

(Start: 19 @67729 has 3 MA's), (Start: 25 @67693 has 22 MA's), (Start: 34 @67636 has 221 MA's), (54, 67507), (55, 67495), (61, 67438), (69, 67384), (70, 67375), (76, 67339),

Gene: Duggie\_101 Start: 68262, Stop: 67927, Start Num: 34

Candidate Starts for Duggie\_101:

(Start: 19 @68379 has 3 MA's), (Start: 25 @68343 has 22 MA's), (Start: 34 @68262 has 221 MA's), (54, 68133), (55, 68121), (61, 68064), (69, 68010), (70, 68001), (76, 67965),

Gene: Durga\_103 Start: 68743, Stop: 68408, Start Num: 34

Candidate Starts for Durga\_103:

(17, 68836), (Start: 19 @68833 has 3 MA's), (20, 68830), (Start: 34 @68743 has 221 MA's), (54, 68614), (55, 68602), (61, 68545), (69, 68491), (70, 68482), (76, 68446),

Gene: Emiris\_103 Start: 68656, Stop: 68318, Start Num: 34

Candidate Starts for Emiris\_103:

(11, 68830), (Start: 34 @68656 has 221 MA's), (38, 68641), (41, 68608), (46, 68572), (55, 68512), (67, 68407), (69, 68401), (74, 68368), (76, 68356),

Gene: EmpTee\_100 Start: 68057, Stop: 67719, Start Num: 34

Candidate Starts for EmpTee\_100:

(11, 68231), (Start: 34 @68057 has 221 MA's), (38, 68042), (41, 68009), (46, 67973), (55, 67913), (67, 67808), (69, 67802), (74, 67769), (76, 67757),

Gene: Eremos\_98 Start: 68156, Stop: 67764, Start Num: 25

Candidate Starts for Eremos\_98:

(Start: 25 @68156 has 22 MA's), (Start: 34 @68099 has 221 MA's), (54, 67970), (55, 67958), (61, 67901), (69, 67847), (70, 67838), (76, 67802),

Gene: Etaye\_100 Start: 68827, Stop: 68492, Start Num: 34

Candidate Starts for Etaye\_100:

(17, 68920), (Start: 19 @68917 has 3 MA's), (20, 68914), (Start: 34 @68827 has 221 MA's), (54, 68698), (55, 68686), (61, 68629), (69, 68575), (70, 68566), (76, 68530),

Gene: Eugenia\_103 Start: 68768, Stop: 68430, Start Num: 34

Candidate Starts for Eugenia\_103:

(11, 68942), (Start: 34 @68768 has 221 MA's), (38, 68753), (41, 68720), (46, 68684), (55, 68624), (67, 68519), (69, 68513), (74, 68480), (76, 68468),

Gene: Fang\_101 Start: 68198, Stop: 67860, Start Num: 34

Candidate Starts for Fang\_101:

(11, 68372), (Start: 34 @68198 has 221 MA's), (38, 68183), (41, 68150), (46, 68114), (55, 68054), (67, 67949), (69, 67943), (74, 67910), (76, 67898),

Gene: FluffyNinja\_102 Start: 68345, Stop: 68007, Start Num: 34

Candidate Starts for FluffyNinja\_102:

(11, 68519), (Start: 34 @68345 has 221 MA's), (38, 68330), (41, 68297), (46, 68261), (55, 68201), (67, 68096), (69, 68090), (74, 68057), (76, 68045),

Gene: Fortunato\_84 Start: 65374, Stop: 65072, Start Num: 42

Candidate Starts for Fortunato\_84:

(3, 65821), (7, 65761), (9, 65635), (Start: 18 @65548 has 1 MA's), (Start: 35 @65431 has 1 MA's), (Start: 42 @65374 has 16 MA's), (49, 65332), (54, 65299), (55, 65287), (58, 65257), (61, 65230), (64, 65206), (67, 65173), (69, 65167), (71, 65152), (72, 65140), (74, 65134), (75, 65125),

Gene: Fozzie\_97 Start: 68394, Stop: 68056, Start Num: 34

Candidate Starts for Fozzie\_97:

(Start: 34 @68394 has 221 MA's), (38, 68379), (41, 68346), (46, 68310), (55, 68250), (67, 68145), (69, 68139), (74, 68106), (76, 68094),

Gene: Frankicide\_98 Start: 67894, Stop: 67556, Start Num: 34

Candidate Starts for Frankicide\_98:



(11, 68068), (Start: 34 @67894 has 221 MA's), (38, 67879), (41, 67846), (46, 67810), (55, 67750), (67, 67645), (69, 67639), (74, 67606), (76, 67594),

Gene: Frederick\_85 Start: 65861, Stop: 65559, Start Num: 42

Candidate Starts for Frederick\_85:

(7, 66248), (9, 66122), (Start: 35 @65918 has 1 MA's), (Start: 42 @65861 has 16 MA's), (49, 65819), (54, 65786), (55, 65774), (58, 65744), (64, 65693), (67, 65660), (69, 65654), (71, 65639), (72, 65627), (74, 65621), (75, 65612),

Gene: Freya\_97 Start: 67664, Stop: 67326, Start Num: 34

Candidate Starts for Freya\_97:

(11, 67838), (Start: 34 @67664 has 221 MA's), (38, 67649), (41, 67616), (46, 67580), (55, 67520), (67, 67415), (69, 67409), (74, 67376), (76, 67364),

Gene: FriarPreacher\_98 Start: 68043, Stop: 67705, Start Num: 34

Candidate Starts for FriarPreacher\_98:

(11, 68217), (Start: 34 @68043 has 221 MA's), (38, 68028), (41, 67995), (46, 67959), (55, 67899), (67, 67794), (69, 67788), (74, 67755), (76, 67743),

Gene: Fringe\_105 Start: 68820, Stop: 68482, Start Num: 34

Candidate Starts for Fringe\_105:

(11, 68994), (Start: 34 @68820 has 221 MA's), (38, 68805), (41, 68772), (46, 68736), (55, 68676), (67, 68571), (69, 68565), (74, 68532), (76, 68520),

Gene: FugateOSU\_101 Start: 69105, Stop: 68767, Start Num: 34

Candidate Starts for FugateOSU\_101:

(11, 69279), (Start: 34 @69105 has 221 MA's), (38, 69090), (41, 69057), (46, 69021), (55, 68961), (67, 68856), (69, 68850), (74, 68817), (76, 68805),

Gene: Funsized\_90 Start: 69980, Stop: 69603, Start Num: 28

Candidate Starts for Funsized\_90:

(22, 70028), (Start: 28 @69980 has 1 MA's), (44, 69869), (48, 69845), (51, 69833), (57, 69782), (63, 69728), (65, 69716), (66, 69710),

Gene: Gareth\_101 Start: 68494, Stop: 68156, Start Num: 34

Candidate Starts for Gareth\_101:

(Start: 34 @68494 has 221 MA's), (38, 68479), (41, 68446), (46, 68410), (55, 68350), (67, 68245), (69, 68239), (74, 68206), (76, 68194),

Gene: GeneCoco\_100 Start: 68424, Stop: 68089, Start Num: 34

Candidate Starts for GeneCoco\_100:

(17, 68517), (Start: 19 @68514 has 3 MA's), (20, 68511), (Start: 34 @68424 has 221 MA's), (54, 68295), (55, 68283), (61, 68226), (69, 68172), (70, 68163), (76, 68127),

Gene: Giraffe\_102 Start: 68498, Stop: 68160, Start Num: 34

Candidate Starts for Giraffe\_102:

(11, 68672), (Start: 34 @68498 has 221 MA's), (38, 68483), (41, 68450), (46, 68414), (55, 68354), (67, 68249), (69, 68243), (74, 68210), (76, 68198),

Gene: Gophee\_100 Start: 68485, Stop: 68147, Start Num: 34

Candidate Starts for Gophee\_100:

(11, 68659), (Start: 34 @68485 has 221 MA's), (38, 68470), (41, 68437), (46, 68401), (55, 68341), (67, 68236), (69, 68230), (74, 68197), (76, 68185),

Gene: Grand2040\_98 Start: 68220, Stop: 67882, Start Num: 34

Candidate Starts for Grand2040\_98:

(11, 68394), (Start: 34 @68220 has 221 MA's), (38, 68205), (41, 68172), (46, 68136), (55, 68076), (67, 67971), (69, 67965), (74, 67932), (76, 67920),

Gene: Gwilliam\_101 Start: 69104, Stop: 68688, Start Num: 25

Candidate Starts for Gwilliam\_101:

(Start: 19 @69140 has 3 MA's), (Start: 25 @69104 has 22 MA's), (Start: 34 @69023 has 221 MA's), (54, 68894), (55, 68882), (61, 68825), (69, 68771), (70, 68762), (76, 68726),

Gene: Gyarad\_0099 Start: 67633, Stop: 67295, Start Num: 34

Candidate Starts for Gyarad\_0099:

(11, 67807), (Start: 34 @67633 has 221 MA's), (38, 67618), (41, 67585), (46, 67549), (55, 67489), (67, 67384), (69, 67378), (74, 67345), (76, 67333),

Gene: HSavage\_98 Start: 67667, Stop: 67275, Start Num: 25

Candidate Starts for HSavage\_98:

(Start: 25 @67667 has 22 MA's), (Start: 34 @67610 has 221 MA's), (54, 67481), (55, 67469), (61, 67412), (69, 67358), (70, 67349), (76, 67313),

Gene: Haimas\_98 Start: 67925, Stop: 67587, Start Num: 34

Candidate Starts for Haimas\_98:

(11, 68099), (Start: 34 @67925 has 221 MA's), (38, 67910), (41, 67877), (46, 67841), (55, 67781), (67, 67676), (69, 67670), (74, 67637), (76, 67625),

Gene: Haleema\_100 Start: 68044, Stop: 67706, Start Num: 34

Candidate Starts for Haleema\_100:

(11, 68218), (Start: 34 @68044 has 221 MA's), (38, 68029), (41, 67996), (46, 67960), (55, 67900), (67, 67795), (69, 67789), (74, 67756), (76, 67744),

Gene: Hamish\_98 Start: 68213, Stop: 67875, Start Num: 34

Candidate Starts for Hamish\_98:

(11, 68387), (Start: 34 @68213 has 221 MA's), (38, 68198), (41, 68165), (46, 68129), (55, 68069), (67, 67964), (69, 67958), (74, 67925), (76, 67913),

Gene: Hangman\_86 Start: 66073, Stop: 65771, Start Num: 42

Candidate Starts for Hangman\_86:

(7, 66460), (9, 66334), (Start: 35 @66130 has 1 MA's), (Start: 42 @66073 has 16 MA's), (49, 66031), (54, 65998), (55, 65986), (58, 65956), (61, 65929), (64, 65905), (67, 65872), (69, 65866), (71, 65851), (72, 65839), (74, 65833), (75, 65824),

Gene: Hartsy\_97 Start: 68213, Stop: 67821, Start Num: 25

Candidate Starts for Hartsy\_97:

(Start: 19 @68249 has 3 MA's), (Start: 25 @68213 has 22 MA's), (Start: 34 @68156 has 221 MA's), (54, 68027), (55, 68015), (61, 67958), (69, 67904), (70, 67895), (76, 67859),

Gene: Harvey\_98 Start: 67821, Stop: 67483, Start Num: 34

Candidate Starts for Harvey\_98:

(11, 67995), (Start: 34 @67821 has 221 MA's), (38, 67806), (41, 67773), (46, 67737), (55, 67677), (67, 67572), (69, 67566), (74, 67533), (76, 67521),

Gene: Held\_99 Start: 67942, Stop: 67604, Start Num: 34

Candidate Starts for Held\_99:

(11, 68116), (Start: 34 @67942 has 221 MA's), (38, 67927), (41, 67894), (46, 67858), (55, 67798), (67, 67693), (69, 67687), (74, 67654), (76, 67642),

Gene: HenryJackson\_101 Start: 68662, Stop: 68324, Start Num: 34

Candidate Starts for HenryJackson\_101:

(11, 68836), (Start: 34 @68662 has 221 MA's), (38, 68647), (41, 68614), (46, 68578), (55, 68518), (67, 68413), (69, 68407), (74, 68374), (76, 68362),

Gene: Hertubise\_100 Start: 68304, Stop: 67966, Start Num: 34

Candidate Starts for Hertubise\_100:

(11, 68478), (Start: 34 @68304 has 221 MA's), (38, 68289), (41, 68256), (46, 68220), (55, 68160), (67, 68055), (69, 68049), (74, 68016), (76, 68004),

Gene: Hetaeria\_100 Start: 68034, Stop: 67696, Start Num: 34

Candidate Starts for Hetaeria\_100:

(11, 68208), (Start: 34 @68034 has 221 MA's), (38, 68019), (41, 67986), (46, 67950), (55, 67890), (67, 67785), (69, 67779), (74, 67746), (76, 67734),

Gene: HighStump\_103 Start: 68450, Stop: 68112, Start Num: 34

Candidate Starts for HighStump\_103:

(11, 68624), (Start: 34 @68450 has 221 MA's), (38, 68435), (41, 68402), (46, 68366), (55, 68306), (67, 68201), (69, 68195), (74, 68162), (76, 68150),

Gene: Hocus\_100 Start: 67960, Stop: 67625, Start Num: 34

Candidate Starts for Hocus\_100:

(17, 68053), (Start: 19 @68050 has 3 MA's), (20, 68047), (Start: 34 @67960 has 221 MA's), (54, 67831), (55, 67819), (61, 67762), (69, 67708), (70, 67699), (76, 67663),

Gene: Horchata\_95 Start: 67795, Stop: 67460, Start Num: 34

Candidate Starts for Horchata\_95:

(Start: 25 @67852 has 22 MA's), (Start: 34 @67795 has 221 MA's), (54, 67666), (55, 67654), (61, 67597), (69, 67543), (70, 67534), (76, 67498),

Gene: Hosp\_089 Start: 65595, Stop: 65230, Start Num: 33

Candidate Starts for Hosp\_089:

(32, 65598), (33, 65595), (38, 65559), (Start: 42 @65523 has 16 MA's), (45, 65502), (54, 65454), (55, 65442), (61, 65385), (65, 65358), (72, 65301), (74, 65295), (77, 65271), (78, 65259),

Gene: Hydro\_86 Start: 65948, Stop: 65646, Start Num: 42

Candidate Starts for Hydro\_86:

(8, 66236), (Start: 35 @66005 has 1 MA's), (Start: 42 @65948 has 16 MA's), (49, 65906), (54, 65873), (55, 65861), (58, 65831), (61, 65804), (64, 65780), (67, 65747), (69, 65741), (71, 65726), (72, 65714), (74, 65708), (75, 65699),

Gene: ImtiyazSitla\_102 Start: 68483, Stop: 68148, Start Num: 34

Candidate Starts for ImtiyazSitla\_102:

(Start: 19 @68576 has 3 MA's), (Start: 25 @68540 has 22 MA's), (Start: 34 @68483 has 221 MA's), (54, 68354), (55, 68342), (61, 68285), (69, 68231), (70, 68222), (76, 68186),

Gene: Imvubu\_93 Start: 66861, Stop: 66478, Start Num: 30

Candidate Starts for Imvubu\_93:

(Start: 30 @66861 has 1 MA's), (43, 66768), (45, 66750), (50, 66720), (51, 66717), (62, 66618), (63, 66606), (67, 66573),

Gene: Inchworm\_102 Start: 68330, Stop: 67995, Start Num: 34

Candidate Starts for Inchworm\_102:

(Start: 19 @68423 has 3 MA's), (Start: 25 @68387 has 22 MA's), (Start: 34 @68330 has 221 MA's), (54, 68201), (55, 68189), (61, 68132), (69, 68078), (70, 68069), (76, 68033),

Gene: Inverness\_98 Start: 67893, Stop: 67555, Start Num: 34

Candidate Starts for Inverness\_98:

(11, 68067), (Start: 34 @67893 has 221 MA's), (38, 67878), (41, 67845), (46, 67809), (55, 67749), (67, 67644), (69, 67638), (74, 67605), (76, 67593),

Gene: Iridoclysis\_100 Start: 68226, Stop: 67888, Start Num: 34

Candidate Starts for Iridoclysis\_100:

(11, 68400), (Start: 34 @68226 has 221 MA's), (38, 68211), (41, 68178), (46, 68142), (55, 68082), (67, 67977), (69, 67971), (74, 67938), (76, 67926),

Gene: IsaacEli\_103 Start: 68467, Stop: 68129, Start Num: 34

Candidate Starts for IsaacEli\_103:

(11, 68641), (Start: 34 @68467 has 221 MA's), (38, 68452), (41, 68419), (46, 68383), (55, 68323), (67, 68218), (69, 68212), (74, 68179), (76, 68167),

Gene: JDog\_100 Start: 68490, Stop: 68155, Start Num: 34

Candidate Starts for JDog\_100:

(17, 68583), (Start: 19 @68580 has 3 MA's), (20, 68577), (Start: 34 @68490 has 221 MA's), (54, 68361), (55, 68349), (61, 68292), (69, 68238), (70, 68229), (76, 68193),

Gene: JacAttac\_101 Start: 67940, Stop: 67602, Start Num: 34

Candidate Starts for JacAttac\_101:

(11, 68114), (Start: 34 @67940 has 221 MA's), (38, 67925), (41, 67892), (46, 67856), (55, 67796), (67, 67691), (69, 67685), (74, 67652), (76, 67640),

Gene: JaguarMi\_80 Start: 65926, Stop: 65639, Start Num: 42

Candidate Starts for JaguarMi\_80:

(9, 66187), (10, 66178), (Start: 35 @65983 has 1 MA's), (Start: 42 @65926 has 16 MA's), (49, 65884), (54, 65851), (55, 65839), (58, 65824), (61, 65797), (67, 65740), (69, 65734), (71, 65719), (72, 65707), (74, 65701), (75, 65692),

Gene: JakeO\_102 Start: 68218, Stop: 67883, Start Num: 34

Candidate Starts for JakeO\_102:

(Start: 19 @68308 has 3 MA's), (20, 68305), (Start: 34 @68218 has 221 MA's), (54, 68089), (55, 68077), (61, 68020), (69, 67966), (70, 67957), (76, 67921),

Gene: JangoPhett\_99 Start: 68302, Stop: 67964, Start Num: 34

Candidate Starts for JangoPhett\_99:

(11, 68476), (Start: 34 @68302 has 221 MA's), (38, 68287), (41, 68254), (46, 68218), (55, 68158), (67, 68053), (69, 68047), (74, 68014), (76, 68002),

Gene: Jillium\_101 Start: 68379, Stop: 68041, Start Num: 34

Candidate Starts for Jillium\_101:

(11, 68553), (Start: 34 @68379 has 221 MA's), (38, 68364), (41, 68331), (46, 68295), (55, 68235), (67, 68130), (69, 68124), (74, 68091), (76, 68079),

Gene: Jiminy\_101 Start: 68154, Stop: 67819, Start Num: 34

Candidate Starts for Jiminy\_101:

(Start: 19 @68271 has 3 MA's), (Start: 25 @68235 has 22 MA's), (Start: 34 @68154 has 221 MA's), (54, 68025), (55, 68013), (61, 67956), (69, 67902), (70, 67893), (76, 67857),

Gene: Jolie1\_091 Start: 67627, Stop: 67298, Start Num: 38

Candidate Starts for Jolie1\_091:

(15, 67786), (16, 67780), (32, 67666), (33, 67663), (38, 67627), (Start: 42 @67591 has 16 MA's), (45, 67570), (54, 67522), (55, 67510), (61, 67453), (65, 67426), (68, 67393), (72, 67369), (74, 67363), (77, 67339), (78, 67327),

Gene: KLucky39\_98 Start: 67765, Stop: 67427, Start Num: 34

Candidate Starts for KLucky39\_98:

(Start: 34 @67765 has 221 MA's), (38, 67750), (41, 67717), (46, 67681), (55, 67621), (67, 67516), (69, 67510), (74, 67477), (76, 67465),

Gene: Kahve\_101 Start: 68660, Stop: 68322, Start Num: 34

Candidate Starts for Kahve\_101:

(11, 68834), (Start: 34 @68660 has 221 MA's), (38, 68645), (41, 68612), (46, 68576), (55, 68516), (67, 68411), (69, 68405), (74, 68372), (76, 68360),

Gene: Kailash\_99 Start: 68354, Stop: 68019, Start Num: 34

Candidate Starts for Kailash\_99:

(Start: 19 @68447 has 3 MA's), (Start: 25 @68411 has 22 MA's), (Start: 34 @68354 has 221 MA's), (54, 68225), (55, 68213), (61, 68156), (69, 68102), (70, 68093), (76, 68057),

Gene: Katniss\_103 Start: 68076, Stop: 67738, Start Num: 34

Candidate Starts for Katniss\_103:

(11, 68250), (Start: 34 @68076 has 221 MA's), (38, 68061), (41, 68028), (46, 67992), (55, 67932), (67, 67827), (69, 67821), (74, 67788), (76, 67776),

Gene: KayaCho\_89 Start: 67455, Stop: 67165, Start Num: 42

Candidate Starts for KayaCho\_89:

(31, 67539), (32, 67536), (33, 67533), (37, 67503), (38, 67497), (Start: 42 @67455 has 16 MA's), (52, 67392), (53, 67383), (55, 67371), (56, 67368), (60, 67323), (67, 67263), (69, 67257), (72, 67230), (75, 67215),

Gene: Keitherie\_104 Start: 68709, Stop: 68377, Start Num: 34

Candidate Starts for Keitherie\_104:

(Start: 25 @68766 has 22 MA's), (Start: 34 @68709 has 221 MA's), (41, 68664), (46, 68628), (54, 68583), (55, 68571), (61, 68514), (69, 68460), (70, 68451), (76, 68415),

Gene: Kikipoo\_103 Start: 68467, Stop: 68129, Start Num: 34

Candidate Starts for Kikipoo\_103:

(11, 68641), (Start: 34 @68467 has 221 MA's), (38, 68452), (41, 68419), (46, 68383), (55, 68323), (67, 68218), (69, 68212), (74, 68179), (76, 68167),

Gene: Kimbrough\_102 Start: 68539, Stop: 68201, Start Num: 34

Candidate Starts for Kimbrough\_102:

(11, 68713), (Start: 34 @68539 has 221 MA's), (38, 68524), (41, 68491), (46, 68455), (55, 68395), (67, 68290), (69, 68284), (74, 68251), (76, 68239),

Gene: KingTut\_91 Start: 64456, Stop: 64118, Start Num: 34  
Candidate Starts for KingTut\_91:  
(11, 64630), (Start: 34 @64456 has 221 MA's), (38, 64441), (41, 64408), (46, 64372), (55, 64312), (67, 64207), (69, 64201), (74, 64168), (76, 64156),

Gene: KingVeVeVe\_99 Start: 67723, Stop: 67331, Start Num: 25  
Candidate Starts for KingVeVeVe\_99:  
(Start: 25 @67723 has 22 MA's), (Start: 34 @67666 has 221 MA's), (54, 67537), (61, 67468), (69, 67414), (70, 67405), (76, 67369),

Gene: KlimbOn\_100 Start: 67973, Stop: 67638, Start Num: 34  
Candidate Starts for KlimbOn\_100:  
(Start: 19 @68090 has 3 MA's), (Start: 25 @68054 has 22 MA's), (Start: 34 @67973 has 221 MA's), (54, 67844), (55, 67832), (61, 67775), (69, 67721), (70, 67712), (76, 67676),

Gene: Kloppinator\_101 Start: 68109, Stop: 67771, Start Num: 34  
Candidate Starts for Kloppinator\_101:  
(11, 68283), (Start: 34 @68109 has 221 MA's), (38, 68094), (41, 68061), (46, 68025), (55, 67965), (67, 67860), (69, 67854), (74, 67821), (76, 67809),

Gene: Knocker\_90 Start: 68842, Stop: 68459, Start Num: 29  
Candidate Starts for Knocker\_90:  
(Start: 18 @68917 has 1 MA's), (21, 68893), (24, 68884), (Start: 29 @68842 has 1 MA's), (41, 68761), (43, 68749), (44, 68734), (45, 68731), (48, 68710), (51, 68698), (64, 68578), (67, 68554), (74, 68515),

Gene: Kwadwo\_100 Start: 67963, Stop: 67625, Start Num: 34  
Candidate Starts for Kwadwo\_100:  
(11, 68137), (Start: 34 @67963 has 221 MA's), (38, 67948), (41, 67915), (46, 67879), (55, 67819), (67, 67714), (69, 67708), (74, 67675), (76, 67663),

Gene: Kwksand96\_102 Start: 68223, Stop: 67888, Start Num: 34  
Candidate Starts for Kwksand96\_102:  
(Start: 19 @68316 has 3 MA's), (Start: 25 @68280 has 22 MA's), (Start: 34 @68223 has 221 MA's), (54, 68094), (55, 68082), (61, 68025), (69, 67971), (70, 67962), (76, 67926),

Gene: Labeouficaum\_101 Start: 68095, Stop: 67703, Start Num: 25  
Candidate Starts for Labeouficaum\_101:  
(Start: 19 @68131 has 3 MA's), (Start: 25 @68095 has 22 MA's), (Start: 34 @68038 has 221 MA's), (54, 67909), (55, 67897), (61, 67840), (69, 67786), (70, 67777), (76, 67741),

Gene: LasagnaCat\_100 Start: 68339, Stop: 68004, Start Num: 34  
Candidate Starts for LasagnaCat\_100:  
(Start: 19 @68432 has 3 MA's), (Start: 25 @68396 has 22 MA's), (Start: 34 @68339 has 221 MA's), (54, 68210), (55, 68198), (61, 68141), (69, 68087), (70, 68078), (76, 68042),

Gene: Lasso\_100 Start: 68205, Stop: 67867, Start Num: 34  
Candidate Starts for Lasso\_100:  
(11, 68379), (Start: 34 @68205 has 221 MA's), (38, 68190), (41, 68157), (46, 68121), (55, 68061), (67, 67956), (69, 67950), (74, 67917), (76, 67905),

Gene: LeeLot\_99 Start: 68550, Stop: 68212, Start Num: 34  
Candidate Starts for LeeLot\_99:

(11, 68724), (Start: 34 @68550 has 221 MA's), (38, 68535), (41, 68502), (46, 68466), (55, 68406), (67, 68301), (69, 68295), (74, 68262), (76, 68250),

Gene: Lego3393\_99 Start: 68666, Stop: 68328, Start Num: 34

Candidate Starts for Lego3393\_99:

(11, 68840), (Start: 34 @68666 has 221 MA's), (38, 68651), (41, 68618), (46, 68582), (55, 68522), (67, 68417), (69, 68411), (74, 68378), (76, 68366),

Gene: Legolas\_102 Start: 68293, Stop: 67955, Start Num: 34

Candidate Starts for Legolas\_102:

(11, 68467), (Start: 34 @68293 has 221 MA's), (38, 68278), (41, 68245), (46, 68209), (55, 68149), (67, 68044), (69, 68038), (74, 68005), (76, 67993),

Gene: LeiMonet\_103 Start: 68420, Stop: 68085, Start Num: 34

Candidate Starts for LeiMonet\_103:

(17, 68513), (Start: 19 @68510 has 3 MA's), (20, 68507), (Start: 34 @68420 has 221 MA's), (54, 68291), (55, 68279), (61, 68222), (69, 68168), (70, 68159), (76, 68123),

Gene: LemonSlice\_101 Start: 67952, Stop: 67614, Start Num: 34

Candidate Starts for LemonSlice\_101:

(11, 68126), (Start: 34 @67952 has 221 MA's), (38, 67937), (41, 67904), (46, 67868), (55, 67808), (67, 67703), (69, 67697), (74, 67664), (76, 67652),

Gene: LilMcDreamy\_91 Start: 68544, Stop: 68251, Start Num: 42

Candidate Starts for LilMcDreamy\_91:

(Start: 42 @68544 has 16 MA's), (45, 68523), (54, 68475), (55, 68463), (73, 68319),

Gene: Lolalove\_87 Start: 65892, Stop: 65590, Start Num: 42

Candidate Starts for Lolalove\_87:

(2, 66483), (7, 66279), (9, 66153), (Start: 18 @66066 has 1 MA's), (Start: 35 @65949 has 1 MA's), (Start: 42 @65892 has 16 MA's), (49, 65850), (54, 65817), (55, 65805), (58, 65775), (61, 65748), (64, 65724), (67, 65691), (69, 65685), (71, 65670), (72, 65658), (74, 65652), (75, 65643),

Gene: Longacauda\_101 Start: 68181, Stop: 67846, Start Num: 34

Candidate Starts for Longacauda\_101:

(Start: 19 @68298 has 3 MA's), (Start: 25 @68262 has 22 MA's), (Start: 34 @68181 has 221 MA's), (54, 68052), (55, 68040), (61, 67983), (69, 67929), (70, 67920), (76, 67884),

Gene: Lopsy\_97 Start: 67909, Stop: 67517, Start Num: 25

Candidate Starts for Lopsy\_97:

(Start: 19 @67945 has 3 MA's), (Start: 25 @67909 has 22 MA's), (Start: 34 @67852 has 221 MA's), (54, 67723), (55, 67711), (61, 67654), (69, 67600), (70, 67591), (76, 67555),

Gene: LostAndPhound\_100 Start: 68494, Stop: 68156, Start Num: 34

Candidate Starts for LostAndPhound\_100:

(11, 68668), (Start: 34 @68494 has 221 MA's), (38, 68479), (41, 68446), (46, 68410), (55, 68350), (67, 68245), (69, 68239), (74, 68206), (76, 68194),

Gene: LuckyMarjie\_98 Start: 67704, Stop: 67366, Start Num: 34

Candidate Starts for LuckyMarjie\_98:

(11, 67878), (Start: 34 @67704 has 221 MA's), (38, 67689), (41, 67656), (46, 67620), (55, 67560), (67, 67455), (69, 67449), (74, 67416), (76, 67404),

Gene: Lulumae\_96 Start: 67685, Stop: 67347, Start Num: 34

Candidate Starts for Lulumae\_96:

(11, 67859), (Start: 34 @67685 has 221 MA's), (38, 67670), (41, 67637), (46, 67601), (55, 67541), (67, 67436), (69, 67430), (74, 67397), (76, 67385),

Gene: Lulwa\_98 Start: 67318, Stop: 66980, Start Num: 34

Candidate Starts for Lulwa\_98:

(11, 67492), (Start: 34 @67318 has 221 MA's), (38, 67303), (41, 67270), (46, 67234), (55, 67174), (67, 67069), (69, 67063), (74, 67030), (76, 67018),

Gene: Lumine\_102 Start: 68142, Stop: 67804, Start Num: 34

Candidate Starts for Lumine\_102:

(11, 68316), (Start: 34 @68142 has 221 MA's), (38, 68127), (41, 68094), (46, 68058), (55, 67998), (67, 67893), (69, 67887), (74, 67854), (76, 67842),

Gene: MRabcd\_101 Start: 68420, Stop: 68082, Start Num: 34

Candidate Starts for MRabcd\_101:

(11, 68594), (Start: 34 @68420 has 221 MA's), (38, 68405), (41, 68372), (46, 68336), (55, 68276), (67, 68171), (69, 68165), (74, 68132), (76, 68120),

Gene: Mag7\_99 Start: 67898, Stop: 67563, Start Num: 34

Candidate Starts for Mag7\_99:

(Start: 19 @67991 has 3 MA's), (Start: 25 @67955 has 22 MA's), (Start: 34 @67898 has 221 MA's), (54, 67769), (55, 67757), (61, 67700), (69, 67646), (70, 67637), (76, 67601),

Gene: Magpie\_82 Start: 65575, Stop: 65273, Start Num: 42

Candidate Starts for Magpie\_82:

(1, 66226), (7, 65962), (9, 65836), (Start: 18 @65749 has 1 MA's), (Start: 35 @65632 has 1 MA's), (Start: 42 @65575 has 16 MA's), (49, 65533), (54, 65500), (55, 65488), (58, 65458), (61, 65431), (64, 65407), (67, 65374), (69, 65368), (71, 65353), (72, 65341), (74, 65335), (75, 65326),

Gene: Mana\_98 Start: 68108, Stop: 67770, Start Num: 34

Candidate Starts for Mana\_98:

(11, 68282), (Start: 34 @68108 has 221 MA's), (38, 68093), (41, 68060), (46, 68024), (55, 67964), (67, 67859), (69, 67853), (74, 67820), (76, 67808),

Gene: Manad\_100 Start: 68211, Stop: 67876, Start Num: 34

Candidate Starts for Manad\_100:

(20, 68301), (Start: 25 @68268 has 22 MA's), (Start: 34 @68211 has 221 MA's), (41, 68166), (46, 68130), (54, 68085), (55, 68073), (61, 68016), (69, 67962), (70, 67953), (76, 67917),

Gene: Maru\_100 Start: 68313, Stop: 67975, Start Num: 34

Candidate Starts for Maru\_100:

(11, 68487), (Start: 34 @68313 has 221 MA's), (38, 68298), (41, 68265), (46, 68229), (55, 68169), (67, 68064), (69, 68058), (74, 68025), (76, 68013),

Gene: Maskar\_102 Start: 68483, Stop: 68148, Start Num: 34

Candidate Starts for Maskar\_102:

(Start: 19 @68576 has 3 MA's), (Start: 25 @68540 has 22 MA's), (Start: 34 @68483 has 221 MA's), (54, 68354), (55, 68342), (61, 68285), (69, 68231), (70, 68222), (76, 68186),

Gene: Matalotodo\_101 Start: 68952, Stop: 68614, Start Num: 34

Candidate Starts for Matalotodo\_101:



(11, 69126), (Start: 34 @68952 has 221 MA's), (38, 68937), (41, 68904), (46, 68868), (55, 68808), (67, 68703), (69, 68697), (74, 68664), (76, 68652),

Gene: Mcshane\_103 Start: 68387, Stop: 67995, Start Num: 25

Candidate Starts for Mcshane\_103:

(Start: 19 @68423 has 3 MA's), (Start: 25 @68387 has 22 MA's), (Start: 34 @68330 has 221 MA's), (54, 68201), (55, 68189), (61, 68132), (69, 68078), (70, 68069), (76, 68033),

Gene: Mecca\_101 Start: 68519, Stop: 68181, Start Num: 34

Candidate Starts for Mecca\_101:

(11, 68693), (Start: 34 @68519 has 221 MA's), (38, 68504), (41, 68471), (46, 68435), (55, 68375), (67, 68270), (69, 68264), (74, 68231), (76, 68219),

Gene: Megamind20\_103 Start: 68299, Stop: 67961, Start Num: 34

Candidate Starts for Megamind20\_103:

(11, 68473), (Start: 34 @68299 has 221 MA's), (38, 68284), (41, 68251), (46, 68215), (55, 68155), (67, 68050), (69, 68044), (74, 68011), (76, 67999),

Gene: Megatron\_102 Start: 68638, Stop: 68300, Start Num: 34

Candidate Starts for Megatron\_102:

(11, 68812), (Start: 34 @68638 has 221 MA's), (38, 68623), (41, 68590), (46, 68554), (55, 68494), (67, 68389), (69, 68383), (74, 68350), (76, 68338),

Gene: Melc17\_98 Start: 68582, Stop: 68247, Start Num: 34

Candidate Starts for Melc17\_98:

(17, 68675), (Start: 19 @68672 has 3 MA's), (20, 68669), (Start: 34 @68582 has 221 MA's), (54, 68453), (55, 68441), (61, 68384), (69, 68330), (70, 68321), (76, 68285),

Gene: MelsMeow\_99 Start: 68057, Stop: 67629, Start Num: 19

Candidate Starts for MelsMeow\_99:

(Start: 19 @68057 has 3 MA's), (Start: 25 @68021 has 22 MA's), (Start: 34 @67964 has 221 MA's), (54, 67835), (55, 67823), (61, 67766), (69, 67712), (70, 67703), (76, 67667),

Gene: Mesh1\_101 Start: 68403, Stop: 68065, Start Num: 34

Candidate Starts for Mesh1\_101:

(11, 68577), (Start: 34 @68403 has 221 MA's), (38, 68388), (41, 68355), (46, 68319), (55, 68259), (67, 68154), (69, 68148), (74, 68115), (76, 68103),

Gene: MichaelPhcott\_99 Start: 67952, Stop: 67560, Start Num: 25

Candidate Starts for MichaelPhcott\_99:

(Start: 19 @67988 has 3 MA's), (Start: 25 @67952 has 22 MA's), (Start: 34 @67895 has 221 MA's), (54, 67766), (55, 67754), (61, 67697), (69, 67643), (70, 67634), (76, 67598),

Gene: Mikota\_95 Start: 67396, Stop: 67058, Start Num: 34

Candidate Starts for Mikota\_95:

(4, 67738), (5, 67735), (6, 67732), (13, 67567), (14, 67540), (Start: 34 @67396 has 221 MA's), (38, 67381), (41, 67348), (46, 67312), (55, 67252), (67, 67147), (69, 67141), (74, 67108), (76, 67096),

Gene: MiniBoss\_96 Start: 67067, Stop: 66675, Start Num: 25

Candidate Starts for MiniBoss\_96:

(Start: 25 @67067 has 22 MA's), (Start: 34 @67010 has 221 MA's), (54, 66881), (55, 66869), (61, 66812), (69, 66758), (70, 66749), (76, 66713),

Gene: MitKao\_101 Start: 68121, Stop: 67783, Start Num: 34

Candidate Starts for MitKao\_101:

(11, 68295), (Start: 34 @68121 has 221 MA's), (38, 68106), (41, 68073), (46, 68037), (55, 67977), (67, 67872), (69, 67866), (74, 67833), (76, 67821),

Gene: Mithril\_85 Start: 65732, Stop: 65430, Start Num: 42

Candidate Starts for Mithril\_85:

(3, 66179), (7, 66119), (9, 65993), (Start: 35 @65789 has 1 MA's), (Start: 42 @65732 has 16 MA's), (49, 65690), (54, 65657), (55, 65645), (58, 65615), (61, 65588), (64, 65564), (67, 65531), (69, 65525), (71, 65510), (72, 65498), (74, 65492), (75, 65483),

Gene: Morgushi\_98 Start: 67936, Stop: 67598, Start Num: 34

Candidate Starts for Morgushi\_98:

(11, 68110), (Start: 34 @67936 has 221 MA's), (38, 67921), (41, 67888), (46, 67852), (55, 67792), (67, 67687), (69, 67681), (74, 67648), (76, 67636),

Gene: Morty\_101 Start: 68506, Stop: 68168, Start Num: 34

Candidate Starts for Morty\_101:

(11, 68680), (Start: 34 @68506 has 221 MA's), (38, 68491), (41, 68458), (46, 68422), (55, 68362), (67, 68257), (69, 68251), (74, 68218), (76, 68206),

Gene: Mosaic\_98 Start: 68117, Stop: 67779, Start Num: 34

Candidate Starts for Mosaic\_98:

(11, 68291), (Start: 34 @68117 has 221 MA's), (38, 68102), (41, 68069), (46, 68033), (55, 67973), (67, 67868), (69, 67862), (74, 67829), (76, 67817),

Gene: MrPhizzler\_100 Start: 68410, Stop: 68075, Start Num: 34

Candidate Starts for MrPhizzler\_100:

(17, 68503), (Start: 19 @68500 has 3 MA's), (20, 68497), (Start: 34 @68410 has 221 MA's), (54, 68281), (55, 68269), (61, 68212), (69, 68158), (70, 68149), (76, 68113),

Gene: Mudslide\_86 Start: 66122, Stop: 65820, Start Num: 42

Candidate Starts for Mudslide\_86:

(2, 66713), (7, 66509), (9, 66383), (Start: 18 @66296 has 1 MA's), (23, 66266), (26, 66251), (Start: 35 @66179 has 1 MA's), (Start: 42 @66122 has 16 MA's), (49, 66080), (54, 66047), (55, 66035), (58, 66005), (61, 65978), (64, 65954), (67, 65921), (69, 65915), (71, 65900), (72, 65888), (74, 65882), (75, 65873),

Gene: Mulan\_100 Start: 68150, Stop: 67812, Start Num: 34

Candidate Starts for Mulan\_100:

(11, 68324), (Start: 34 @68150 has 221 MA's), (38, 68135), (41, 68102), (46, 68066), (55, 68006), (67, 67901), (69, 67895), (74, 67862), (76, 67850),

Gene: Murdoc\_97 Start: 68229, Stop: 67891, Start Num: 34

Candidate Starts for Murdoc\_97:

(11, 68403), (Start: 34 @68229 has 221 MA's), (38, 68214), (41, 68181), (46, 68145), (55, 68085), (67, 67980), (69, 67974), (74, 67941), (76, 67929),

Gene: Mutante\_102 Start: 68123, Stop: 67785, Start Num: 34

Candidate Starts for Mutante\_102:

(11, 68297), (Start: 34 @68123 has 221 MA's), (38, 68108), (41, 68075), (46, 68039), (55, 67979), (67, 67874), (69, 67868), (74, 67835), (76, 67823),

Gene: Nacho\_00103 Start: 68950, Stop: 68612, Start Num: 34

Candidate Starts for Nacho\_00103:

(11, 69124), (Start: 34 @68950 has 221 MA's), (38, 68935), (41, 68902), (46, 68866), (55, 68806), (67, 68701), (69, 68695), (74, 68662), (76, 68650),

Gene: Nangang\_93 Start: 68170, Stop: 67862, Start Num: 42

Candidate Starts for Nangang\_93:

(Start: 42 @68170 has 16 MA's), (47, 68137), (55, 68089), (59, 68047), (69, 67972), (72, 67945),

Gene: Newman\_96 Start: 68227, Stop: 67889, Start Num: 34

Candidate Starts for Newman\_96:

(11, 68401), (Start: 34 @68227 has 221 MA's), (38, 68212), (41, 68179), (46, 68143), (55, 68083), (67, 67978), (69, 67972), (74, 67939), (76, 67927),

Gene: Nicole21\_102 Start: 68257, Stop: 67919, Start Num: 34

Candidate Starts for Nicole21\_102:

(11, 68431), (Start: 34 @68257 has 221 MA's), (38, 68242), (41, 68209), (46, 68173), (55, 68113), (67, 68008), (69, 68002), (74, 67969), (76, 67957),

Gene: Numberten\_101 Start: 68236, Stop: 67898, Start Num: 34

Candidate Starts for Numberten\_101:

(11, 68410), (Start: 34 @68236 has 221 MA's), (38, 68221), (41, 68188), (46, 68152), (55, 68092), (67, 67987), (69, 67981), (74, 67948), (76, 67936),

Gene: Nyala\_101 Start: 67972, Stop: 67634, Start Num: 34

Candidate Starts for Nyala\_101:

(11, 68146), (Start: 34 @67972 has 221 MA's), (38, 67957), (41, 67924), (46, 67888), (55, 67828), (67, 67723), (69, 67717), (74, 67684), (76, 67672),

Gene: OSmaximus\_101 Start: 68612, Stop: 68184, Start Num: 19

Candidate Starts for OSmaximus\_101:

(Start: 19 @68612 has 3 MA's), (Start: 25 @68576 has 22 MA's), (Start: 34 @68519 has 221 MA's), (41, 68474), (46, 68438), (54, 68393), (55, 68381), (61, 68324), (69, 68270), (70, 68261), (76, 68225),

Gene: Olak\_103 Start: 68558, Stop: 68166, Start Num: 25

Candidate Starts for Olak\_103:

(Start: 19 @68594 has 3 MA's), (Start: 25 @68558 has 22 MA's), (Start: 34 @68501 has 221 MA's), (41, 68456), (46, 68420), (54, 68375), (55, 68363), (61, 68306), (69, 68252), (70, 68243), (76, 68207),

Gene: Oline\_100 Start: 68214, Stop: 67786, Start Num: 19

Candidate Starts for Oline\_100:

(Start: 19 @68214 has 3 MA's), (Start: 25 @68178 has 22 MA's), (Start: 34 @68121 has 221 MA's), (54, 67992), (55, 67980), (61, 67923), (69, 67869), (70, 67860), (76, 67824),

Gene: Olive\_97 Start: 68369, Stop: 68031, Start Num: 34

Candidate Starts for Olive\_97:

(11, 68543), (Start: 34 @68369 has 221 MA's), (38, 68354), (41, 68321), (46, 68285), (55, 68225), (67, 68120), (69, 68114), (74, 68081), (76, 68069),

Gene: OliverWalter\_100 Start: 68421, Stop: 68083, Start Num: 34

Candidate Starts for OliverWalter\_100:

(11, 68595), (Start: 34 @68421 has 221 MA's), (38, 68406), (41, 68373), (46, 68337), (55, 68277), (67, 68172), (69, 68166), (74, 68133), (76, 68121),

Gene: Omniscient\_102 Start: 68826, Stop: 68488, Start Num: 34

Candidate Starts for Omniscient\_102:

(11, 69000), (Start: 34 @68826 has 221 MA's), (38, 68811), (41, 68778), (46, 68742), (55, 68682), (67, 68577), (69, 68571), (74, 68538), (76, 68526),

Gene: Oosterbaan\_101 Start: 68364, Stop: 68026, Start Num: 34

Candidate Starts for Oosterbaan\_101:

(11, 68538), (Start: 34 @68364 has 221 MA's), (38, 68349), (41, 68316), (46, 68280), (55, 68220), (67, 68115), (69, 68109), (74, 68076), (76, 68064),

Gene: Orfeu\_101 Start: 68485, Stop: 68147, Start Num: 34

Candidate Starts for Orfeu\_101:

(11, 68659), (Start: 34 @68485 has 221 MA's), (38, 68470), (41, 68437), (46, 68401), (55, 68341), (67, 68236), (69, 68230), (74, 68197), (76, 68185),

Gene: Orion\_99 Start: 68056, Stop: 67718, Start Num: 34

Candidate Starts for Orion\_99:

(11, 68230), (Start: 34 @68056 has 221 MA's), (38, 68041), (41, 68008), (46, 67972), (55, 67912), (67, 67807), (69, 67801), (74, 67768), (76, 67756),

Gene: Orwigg\_103 Start: 68261, Stop: 67923, Start Num: 34

Candidate Starts for Orwigg\_103:

(Start: 34 @68261 has 221 MA's), (38, 68246), (41, 68213), (46, 68177), (55, 68117), (67, 68012), (69, 68006), (74, 67973), (76, 67961),

Gene: PG1\_99 Start: 68628, Stop: 68290, Start Num: 34

Candidate Starts for PG1\_99:

(11, 68802), (Start: 34 @68628 has 221 MA's), (38, 68613), (41, 68580), (46, 68544), (55, 68484), (67, 68379), (69, 68373), (74, 68340), (76, 68328),

Gene: Pacifista\_104 Start: 68348, Stop: 68010, Start Num: 34

Candidate Starts for Pacifista\_104:

(11, 68522), (Start: 34 @68348 has 221 MA's), (38, 68333), (41, 68300), (46, 68264), (55, 68204), (67, 68099), (69, 68093), (74, 68060), (76, 68048),

Gene: Phamished\_100 Start: 68144, Stop: 67806, Start Num: 34

Candidate Starts for Phamished\_100:

(11, 68318), (Start: 34 @68144 has 221 MA's), (38, 68129), (41, 68096), (46, 68060), (55, 68000), (67, 67895), (69, 67889), (74, 67856), (76, 67844),

Gene: Phareon\_98 Start: 67669, Stop: 67331, Start Num: 34

Candidate Starts for Phareon\_98:

(11, 67843), (Start: 34 @67669 has 221 MA's), (38, 67654), (41, 67621), (46, 67585), (55, 67525), (67, 67420), (69, 67414), (74, 67381), (76, 67369),

Gene: PhatCats2014\_100 Start: 68629, Stop: 68291, Start Num: 34

Candidate Starts for PhatCats2014\_100:

(11, 68803), (Start: 34 @68629 has 221 MA's), (38, 68614), (41, 68581), (46, 68545), (55, 68485), (67, 68380), (69, 68374), (74, 68341), (76, 68329),

Gene: PhatLouie\_103 Start: 68496, Stop: 68161, Start Num: 34

Candidate Starts for PhatLouie\_103:

(17, 68589), (Start: 19 @68586 has 3 MA's), (20, 68583), (Start: 34 @68496 has 221 MA's), (54, 68367), (55, 68355), (61, 68298), (69, 68244), (70, 68235), (76, 68199),

Gene: PhenghisKhan\_101 Start: 68185, Stop: 67793, Start Num: 25

Candidate Starts for PhenghisKhan\_101:

(Start: 19 @68221 has 3 MA's), (Start: 25 @68185 has 22 MA's), (Start: 34 @68128 has 221 MA's), (54, 67999), (55, 67987), (61, 67930), (69, 67876), (70, 67867), (76, 67831),

Gene: Pherdinand\_102 Start: 68348, Stop: 68010, Start Num: 34

Candidate Starts for Pherdinand\_102:

(11, 68522), (Start: 34 @68348 has 221 MA's), (38, 68333), (41, 68300), (46, 68264), (55, 68204), (67, 68099), (69, 68093), (74, 68060), (76, 68048),

Gene: Phergie\_101 Start: 68174, Stop: 67782, Start Num: 25

Candidate Starts for Phergie\_101:

(Start: 19 @68210 has 3 MA's), (Start: 25 @68174 has 22 MA's), (Start: 34 @68117 has 221 MA's), (54, 67988), (55, 67976), (61, 67919), (69, 67865), (70, 67856), (76, 67820),

Gene: Phipps\_98 Start: 67922, Stop: 67584, Start Num: 34

Candidate Starts for Phipps\_98:

(11, 68096), (Start: 34 @67922 has 221 MA's), (38, 67907), (41, 67874), (46, 67838), (55, 67778), (67, 67673), (69, 67667), (74, 67634), (76, 67622),

Gene: Phleuron\_98 Start: 67928, Stop: 67593, Start Num: 34

Candidate Starts for Phleuron\_98:

(Start: 19 @68021 has 3 MA's), (Start: 25 @67985 has 22 MA's), (Start: 34 @67928 has 221 MA's), (54, 67799), (55, 67787), (61, 67730), (69, 67676), (70, 67667), (76, 67631),

Gene: PhrankReynolds\_99 Start: 68179, Stop: 67787, Start Num: 25

Candidate Starts for PhrankReynolds\_99:

(Start: 19 @68215 has 3 MA's), (Start: 25 @68179 has 22 MA's), (Start: 34 @68122 has 221 MA's), (54, 67993), (55, 67981), (61, 67924), (69, 67870), (70, 67861), (76, 67825),

Gene: PhrodoBaggins\_103 Start: 68502, Stop: 68164, Start Num: 34

Candidate Starts for PhrodoBaggins\_103:

(11, 68676), (Start: 34 @68502 has 221 MA's), (38, 68487), (41, 68454), (46, 68418), (55, 68358), (67, 68253), (69, 68247), (74, 68214), (76, 68202),

Gene: Phunky\_98 Start: 68004, Stop: 67666, Start Num: 34

Candidate Starts for Phunky\_98:

(11, 68178), (Start: 34 @68004 has 221 MA's), (38, 67989), (41, 67956), (46, 67920), (55, 67860), (67, 67755), (69, 67749), (74, 67716), (76, 67704),

Gene: Piglet\_00100 Start: 68621, Stop: 68283, Start Num: 34

Candidate Starts for Piglet\_00100:

(11, 68795), (Start: 34 @68621 has 221 MA's), (38, 68606), (41, 68573), (46, 68537), (55, 68477), (67, 68372), (69, 68366), (74, 68333), (76, 68321),

Gene: PinheadLarry\_100 Start: 68267, Stop: 67932, Start Num: 34

Candidate Starts for PinheadLarry\_100:

(17, 68360), (Start: 19 @68357 has 3 MA's), (20, 68354), (Start: 34 @68267 has 221 MA's), (54, 68138), (55, 68126), (61, 68069), (69, 68015), (70, 68006), (76, 67970),

Gene: Pinkman\_100 Start: 68339, Stop: 68004, Start Num: 34

Candidate Starts for Pinkman\_100:

(Start: 19 @68432 has 3 MA's), (Start: 25 @68396 has 22 MA's), (Start: 34 @68339 has 221 MA's), (54, 68210), (55, 68198), (61, 68141), (69, 68087), (70, 68078), (76, 68042),

Gene: Pipsqueak\_98 Start: 67956, Stop: 67618, Start Num: 34

Candidate Starts for Pipsqueak\_98:

(11, 68130), (Start: 34 @67956 has 221 MA's), (38, 67941), (41, 67908), (46, 67872), (55, 67812), (67, 67707), (69, 67701), (74, 67668), (76, 67656),

Gene: Placalicious\_98 Start: 68714, Stop: 68376, Start Num: 34

Candidate Starts for Placalicious\_98:

(11, 68888), (Start: 34 @68714 has 221 MA's), (38, 68699), (41, 68666), (46, 68630), (55, 68570), (67, 68465), (69, 68459), (74, 68426), (76, 68414),

Gene: Plmatters\_98 Start: 67947, Stop: 67609, Start Num: 34

Candidate Starts for Plmatters\_98:

(11, 68121), (Start: 34 @67947 has 221 MA's), (38, 67932), (41, 67899), (46, 67863), (55, 67803), (67, 67698), (69, 67692), (74, 67659), (76, 67647),

Gene: Podrick\_99 Start: 68035, Stop: 67697, Start Num: 34

Candidate Starts for Podrick\_99:

(11, 68209), (Start: 34 @68035 has 221 MA's), (38, 68020), (41, 67987), (46, 67951), (55, 67891), (67, 67786), (69, 67780), (74, 67747), (76, 67735),

Gene: Pops\_98 Start: 67995, Stop: 67657, Start Num: 34

Candidate Starts for Pops\_98:

(Start: 34 @67995 has 221 MA's), (38, 67980), (41, 67947), (46, 67911), (55, 67851), (67, 67746), (69, 67740), (74, 67707), (76, 67695),

Gene: Potter\_95 Start: 67956, Stop: 67618, Start Num: 34

Candidate Starts for Potter\_95:

(11, 68130), (Start: 34 @67956 has 221 MA's), (38, 67941), (41, 67908), (46, 67872), (55, 67812), (67, 67707), (69, 67701), (74, 67668), (76, 67656),

Gene: Prickles\_101 Start: 68082, Stop: 67744, Start Num: 34

Candidate Starts for Prickles\_101:

(11, 68256), (Start: 34 @68082 has 221 MA's), (38, 68067), (41, 68034), (46, 67998), (55, 67938), (67, 67833), (69, 67827), (74, 67794), (76, 67782),

Gene: Prince\_85 Start: 65989, Stop: 65687, Start Num: 42

Candidate Starts for Prince\_85:

(7, 66376), (9, 66250), (Start: 35 @66046 has 1 MA's), (Start: 42 @65989 has 16 MA's), (49, 65947), (54, 65914), (55, 65902), (58, 65872), (61, 65845), (64, 65821), (67, 65788), (69, 65782), (71, 65767), (72, 65755), (74, 65749), (75, 65740),

Gene: ProfessorX\_98 Start: 67715, Stop: 67377, Start Num: 34

Candidate Starts for ProfessorX\_98:

(11, 67889), (Start: 34 @67715 has 221 MA's), (38, 67700), (41, 67667), (46, 67631), (55, 67571), (67, 67466), (69, 67460), (74, 67427), (76, 67415),

Gene: Puhltonio\_96 Start: 67952, Stop: 67614, Start Num: 34

Candidate Starts for Puhltonio\_96:

(11, 68126), (Start: 34 @67952 has 221 MA's), (38, 67937), (41, 67904), (46, 67868), (55, 67808), (67, 67703), (69, 67697), (74, 67664), (76, 67652),

Gene: QueenBeane\_101 Start: 68279, Stop: 67941, Start Num: 34

Candidate Starts for QueenBeane\_101:

(11, 68453), (Start: 34 @68279 has 221 MA's), (38, 68264), (41, 68231), (46, 68195), (55, 68135), (67, 68030), (69, 68024), (74, 67991), (76, 67979),

Gene: Quisquilliae\_102 Start: 68290, Stop: 67952, Start Num: 34

Candidate Starts for Quisquilliae\_102:

(11, 68464), (Start: 34 @68290 has 221 MA's), (38, 68275), (41, 68242), (46, 68206), (55, 68146), (67, 68041), (69, 68035), (74, 68002), (76, 67990),

Gene: RawrgerThat\_85 Start: 65580, Stop: 65278, Start Num: 42

Candidate Starts for RawrgerThat\_85:

(3, 66027), (7, 65967), (9, 65841), (Start: 35 @65637 has 1 MA's), (Start: 42 @65580 has 16 MA's), (49, 65538), (54, 65505), (55, 65493), (58, 65463), (61, 65436), (64, 65412), (67, 65379), (69, 65373), (71, 65358), (72, 65346), (74, 65340), (75, 65331),

Gene: RedMaple\_99 Start: 68613, Stop: 68275, Start Num: 34

Candidate Starts for RedMaple\_99:

(11, 68787), (Start: 34 @68613 has 221 MA's), (38, 68598), (41, 68565), (46, 68529), (55, 68469), (67, 68364), (69, 68358), (74, 68325), (76, 68313),

Gene: Ricotta\_98 Start: 68050, Stop: 67634, Start Num: 25

Candidate Starts for Ricotta\_98:

(Start: 19 @68086 has 3 MA's), (Start: 25 @68050 has 22 MA's), (Start: 34 @67969 has 221 MA's), (54, 67840), (55, 67828), (61, 67771), (69, 67717), (70, 67708), (76, 67672),

Gene: Riggan\_102 Start: 68460, Stop: 68122, Start Num: 34

Candidate Starts for Riggan\_102:

(11, 68634), (Start: 34 @68460 has 221 MA's), (38, 68445), (41, 68412), (46, 68376), (55, 68316), (67, 68211), (69, 68205), (74, 68172), (76, 68160),

Gene: Rimu\_104 Start: 68526, Stop: 68098, Start Num: 17

Candidate Starts for Rimu\_104:

(17, 68526), (Start: 19 @68523 has 3 MA's), (20, 68520), (Start: 34 @68433 has 221 MA's), (54, 68304), (55, 68292), (61, 68235), (69, 68181), (70, 68172), (76, 68136),

Gene: Robyn\_102 Start: 68352, Stop: 68014, Start Num: 34

Candidate Starts for Robyn\_102:

(27, 68397), (Start: 34 @68352 has 221 MA's), (38, 68337), (41, 68304), (46, 68268), (55, 68208), (67, 68103), (69, 68097), (74, 68064), (76, 68052),

Gene: Roliet\_98 Start: 67314, Stop: 66979, Start Num: 34

Candidate Starts for Roliet\_98:

(Start: 25 @67371 has 22 MA's), (Start: 34 @67314 has 221 MA's), (54, 67185), (55, 67173), (61, 67116), (69, 67062), (70, 67053), (76, 67017),

Gene: Roscoe\_99 Start: 68232, Stop: 67894, Start Num: 34

Candidate Starts for Roscoe\_99:

(11, 68406), (Start: 34 @68232 has 221 MA's), (38, 68217), (41, 68184), (46, 68148), (55, 68088), (67, 67983), (69, 67977), (74, 67944), (76, 67932),

Gene: Roy17\_98 Start: 67685, Stop: 67347, Start Num: 34

Candidate Starts for Roy17\_98:

(11, 67859), (Start: 34 @67685 has 221 MA's), (38, 67670), (41, 67637), (46, 67601), (55, 67541), (67, 67436), (69, 67430), (74, 67397), (76, 67385),

Gene: SDcharge11\_99 Start: 67329, Stop: 66994, Start Num: 34

Candidate Starts for SDcharge11\_99:

(Start: 25 @67386 has 22 MA's), (Start: 34 @67329 has 221 MA's), (54, 67200), (55, 67188), (61, 67131), (69, 67077), (70, 67068), (76, 67032),

Gene: Saguaro\_85 Start: 66656, Stop: 66207, Start Num: 18

Candidate Starts for Saguaro\_85:

(Start: 18 @66656 has 1 MA's), (23, 66626), (Start: 28 @66587 has 1 MA's), (38, 66539), (40, 66521), (43, 66497), (44, 66482), (45, 66479), (48, 66458), (51, 66446), (54, 66422), (74, 66263),

Gene: Samaymay\_101 Start: 68279, Stop: 67941, Start Num: 34

Candidate Starts for Samaymay\_101:

(11, 68453), (Start: 34 @68279 has 221 MA's), (38, 68264), (41, 68231), (46, 68195), (55, 68135), (67, 68030), (69, 68024), (74, 67991), (76, 67979),

Gene: SassyCat97\_99 Start: 67947, Stop: 67609, Start Num: 34

Candidate Starts for SassyCat97\_99:

(11, 68121), (Start: 34 @67947 has 221 MA's), (38, 67932), (41, 67899), (46, 67863), (55, 67803), (67, 67698), (69, 67692), (74, 67659), (76, 67647),

Gene: Schadenfreude\_101 Start: 67996, Stop: 67658, Start Num: 34

Candidate Starts for Schadenfreude\_101:

(Start: 34 @67996 has 221 MA's), (38, 67981), (41, 67948), (46, 67912), (55, 67852), (67, 67747), (69, 67741), (74, 67708), (76, 67696),

Gene: Schueller\_100 Start: 68272, Stop: 67880, Start Num: 25

Candidate Starts for Schueller\_100:

(Start: 19 @68308 has 3 MA's), (Start: 25 @68272 has 22 MA's), (Start: 34 @68215 has 221 MA's), (54, 68086), (55, 68074), (61, 68017), (69, 67963), (70, 67954), (76, 67918),

Gene: Scoot17C\_101 Start: 68061, Stop: 67723, Start Num: 34

Candidate Starts for Scoot17C\_101:

(11, 68235), (Start: 34 @68061 has 221 MA's), (38, 68046), (41, 68013), (46, 67977), (55, 67917), (67, 67812), (69, 67806), (74, 67773), (76, 67761),

Gene: Scrick\_102 Start: 68330, Stop: 67992, Start Num: 34

Candidate Starts for Scrick\_102:

(11, 68504), (Start: 34 @68330 has 221 MA's), (38, 68315), (41, 68282), (46, 68246), (55, 68186), (67, 68081), (69, 68075), (74, 68042), (76, 68030),

Gene: Selr12\_105 Start: 68371, Stop: 68033, Start Num: 34

Candidate Starts for Selr12\_105:

(11, 68545), (Start: 34 @68371 has 221 MA's), (38, 68356), (41, 68323), (46, 68287), (55, 68227), (67, 68122), (69, 68116), (74, 68083), (76, 68071),

Gene: Serendipity\_100 Start: 68433, Stop: 68095, Start Num: 34

Candidate Starts for Serendipity\_100:



(11, 68607), (Start: 34 @68433 has 221 MA's), (38, 68418), (41, 68385), (46, 68349), (55, 68289), (67, 68184), (69, 68178), (74, 68145), (76, 68133),

Gene: Serpentine\_00103 Start: 68513, Stop: 68175, Start Num: 34

Candidate Starts for Serpentine\_00103:

(11, 68687), (Start: 34 @68513 has 221 MA's), (38, 68498), (41, 68465), (46, 68429), (55, 68369), (67, 68264), (69, 68258), (74, 68225), (76, 68213),

Gene: Sheila\_95 Start: 67507, Stop: 67172, Start Num: 34

Candidate Starts for Sheila\_95:

(Start: 25 @67564 has 22 MA's), (Start: 34 @67507 has 221 MA's), (54, 67378), (55, 67366), (61, 67309), (69, 67255), (70, 67246), (76, 67210),

Gene: ShiVal\_100 Start: 67984, Stop: 67646, Start Num: 34

Candidate Starts for ShiVal\_100:

(11, 68158), (Start: 34 @67984 has 221 MA's), (38, 67969), (41, 67936), (46, 67900), (55, 67840), (67, 67735), (69, 67729), (74, 67696), (76, 67684),

Gene: Sigman\_100 Start: 67940, Stop: 67602, Start Num: 34

Candidate Starts for Sigman\_100:

(11, 68114), (Start: 34 @67940 has 221 MA's), (38, 67925), (41, 67892), (46, 67856), (55, 67796), (67, 67691), (69, 67685), (74, 67652), (76, 67640),

Gene: Simielle\_101 Start: 67926, Stop: 67588, Start Num: 34

Candidate Starts for Simielle\_101:

(11, 68100), (Start: 34 @67926 has 221 MA's), (38, 67911), (41, 67878), (46, 67842), (55, 67782), (67, 67677), (69, 67671), (74, 67638), (76, 67626),

Gene: Skippy\_101 Start: 68355, Stop: 68017, Start Num: 34

Candidate Starts for Skippy\_101:

(11, 68529), (Start: 34 @68355 has 221 MA's), (38, 68340), (41, 68307), (46, 68271), (55, 68211), (67, 68106), (69, 68100), (74, 68067), (76, 68055),

Gene: Slatt\_103 Start: 68611, Stop: 68273, Start Num: 34

Candidate Starts for Slatt\_103:

(11, 68785), (Start: 34 @68611 has 221 MA's), (38, 68596), (41, 68563), (46, 68527), (55, 68467), (67, 68362), (69, 68356), (74, 68323), (76, 68311),

Gene: Soile\_102 Start: 68555, Stop: 68139, Start Num: 25

Candidate Starts for Soile\_102:

(Start: 19 @68591 has 3 MA's), (Start: 25 @68555 has 22 MA's), (Start: 34 @68474 has 221 MA's), (54, 68345), (55, 68333), (61, 68276), (69, 68222), (70, 68213), (76, 68177),

Gene: Solosis\_99 Start: 67945, Stop: 67610, Start Num: 34

Candidate Starts for Solosis\_99:

(17, 68038), (Start: 19 @68035 has 3 MA's), (20, 68032), (Start: 34 @67945 has 221 MA's), (54, 67816), (55, 67804), (61, 67747), (69, 67693), (70, 67684), (76, 67648),

Gene: Sophia\_99 Start: 67935, Stop: 67597, Start Num: 34

Candidate Starts for Sophia\_99:

(11, 68109), (Start: 34 @67935 has 221 MA's), (38, 67920), (41, 67887), (46, 67851), (55, 67791), (67, 67686), (69, 67680), (74, 67647), (76, 67635),

Gene: Soto\_97 Start: 67376, Stop: 67038, Start Num: 34

Candidate Starts for Soto\_97:

(Start: 34 @67376 has 221 MA's), (38, 67361), (41, 67328), (46, 67292), (55, 67232), (67, 67127), (69, 67121), (74, 67088), (76, 67076),

Gene: Spartan300\_100 Start: 68197, Stop: 67859, Start Num: 34

Candidate Starts for Spartan300\_100:

(11, 68371), (Start: 34 @68197 has 221 MA's), (38, 68182), (41, 68149), (46, 68113), (55, 68053), (67, 67948), (69, 67942), (74, 67909), (76, 67897),

Gene: Squid\_100 Start: 68225, Stop: 67887, Start Num: 34

Candidate Starts for Squid\_100:

(11, 68399), (Start: 34 @68225 has 221 MA's), (38, 68210), (41, 68177), (46, 68141), (55, 68081), (67, 67976), (69, 67970), (74, 67937), (76, 67925),

Gene: Squiggle\_100 Start: 67954, Stop: 67616, Start Num: 34

Candidate Starts for Squiggle\_100:

(11, 68128), (Start: 34 @67954 has 221 MA's), (38, 67939), (41, 67906), (46, 67870), (55, 67810), (67, 67705), (69, 67699), (74, 67666), (76, 67654),

Gene: Stinger\_84 Start: 64428, Stop: 64096, Start Num: 35

Candidate Starts for Stinger\_84:

(12, 64629), (Start: 35 @64428 has 1 MA's), (Start: 42 @64374 has 16 MA's), (54, 64299), (55, 64287), (58, 64257), (61, 64230), (67, 64194), (69, 64188), (72, 64161), (75, 64146),

Gene: Struggle\_101 Start: 68046, Stop: 67711, Start Num: 34

Candidate Starts for Struggle\_101:

(Start: 19 @68163 has 3 MA's), (Start: 25 @68127 has 22 MA's), (Start: 34 @68046 has 221 MA's), (54, 67917), (55, 67905), (61, 67848), (69, 67794), (70, 67785), (76, 67749),

Gene: Suffolk\_96 Start: 67882, Stop: 67544, Start Num: 34

Candidate Starts for Suffolk\_96:

(Start: 34 @67882 has 221 MA's), (38, 67867), (41, 67834), (46, 67798), (55, 67738), (67, 67633), (69, 67627), (74, 67594), (76, 67582),

Gene: Surely\_101 Start: 68517, Stop: 68179, Start Num: 34

Candidate Starts for Surely\_101:

(11, 68691), (Start: 34 @68517 has 221 MA's), (38, 68502), (41, 68469), (46, 68433), (55, 68373), (67, 68268), (69, 68262), (74, 68229), (76, 68217),

Gene: Swiphy\_105 Start: 68496, Stop: 68161, Start Num: 34

Candidate Starts for Swiphy\_105:

(17, 68589), (Start: 19 @68586 has 3 MA's), (20, 68583), (Start: 34 @68496 has 221 MA's), (54, 68367), (55, 68355), (61, 68298), (69, 68244), (70, 68235), (76, 68199),

Gene: Swish\_102 Start: 68364, Stop: 68026, Start Num: 34

Candidate Starts for Swish\_102:

(11, 68538), (Start: 34 @68364 has 221 MA's), (38, 68349), (41, 68316), (46, 68280), (55, 68220), (67, 68115), (69, 68109), (74, 68076), (76, 68064),

Gene: TallGrassMM\_100 Start: 68010, Stop: 67675, Start Num: 34

Candidate Starts for TallGrassMM\_100:

(17, 68103), (Start: 19 @68100 has 3 MA's), (20, 68097), (Start: 34 @68010 has 221 MA's), (54, 67881), (55, 67869), (61, 67812), (69, 67758), (70, 67749), (76, 67713),

Gene: Telesworld\_99 Start: 68087, Stop: 67749, Start Num: 34

Candidate Starts for Telesworld\_99:

(11, 68261), (Start: 34 @68087 has 221 MA's), (38, 68072), (41, 68039), (46, 68003), (55, 67943), (67, 67838), (69, 67832), (74, 67799), (76, 67787),

Gene: Thora\_99 Start: 68468, Stop: 68130, Start Num: 34

Candidate Starts for Thora\_99:

(11, 68642), (Start: 34 @68468 has 221 MA's), (38, 68453), (41, 68420), (46, 68384), (55, 68324), (67, 68219), (69, 68213), (74, 68180), (76, 68168),

Gene: ThreeOh3D2\_102 Start: 68621, Stop: 68283, Start Num: 34

Candidate Starts for ThreeOh3D2\_102:

(11, 68795), (Start: 34 @68621 has 221 MA's), (38, 68606), (41, 68573), (46, 68537), (55, 68477), (67, 68372), (69, 68366), (74, 68333), (76, 68321),

Gene: Timmi\_99 Start: 67984, Stop: 67646, Start Num: 34

Candidate Starts for Timmi\_99:

(11, 68158), (Start: 34 @67984 has 221 MA's), (38, 67969), (41, 67936), (46, 67900), (55, 67840), (67, 67735), (69, 67729), (74, 67696), (76, 67684),

Gene: TomBombadil\_101 Start: 68509, Stop: 68171, Start Num: 34

Candidate Starts for TomBombadil\_101:

(11, 68683), (Start: 34 @68509 has 221 MA's), (38, 68494), (41, 68461), (46, 68425), (55, 68365), (67, 68260), (69, 68254), (74, 68221), (76, 68209),

Gene: Tomlarah\_101 Start: 68817, Stop: 68479, Start Num: 34

Candidate Starts for Tomlarah\_101:

(11, 68991), (Start: 34 @68817 has 221 MA's), (38, 68802), (41, 68769), (46, 68733), (55, 68673), (67, 68568), (69, 68562), (74, 68529), (76, 68517),

Gene: Toni\_100 Start: 68413, Stop: 68075, Start Num: 34

Candidate Starts for Toni\_100:

(11, 68587), (Start: 34 @68413 has 221 MA's), (38, 68398), (41, 68365), (46, 68329), (55, 68269), (67, 68164), (69, 68158), (74, 68125), (76, 68113),

Gene: Tooj\_98 Start: 67628, Stop: 67290, Start Num: 34

Candidate Starts for Tooj\_98:

(Start: 34 @67628 has 221 MA's), (38, 67613), (41, 67580), (46, 67544), (55, 67484), (67, 67379), (69, 67373), (74, 67340), (76, 67328),

Gene: True\_102 Start: 68323, Stop: 67988, Start Num: 34

Candidate Starts for True\_102:

(Start: 19 @68416 has 3 MA's), (Start: 25 @68380 has 22 MA's), (Start: 34 @68323 has 221 MA's), (41, 68278), (46, 68242), (54, 68197), (55, 68185), (61, 68128), (69, 68074), (70, 68065), (76, 68029),

Gene: Trypo\_101 Start: 68675, Stop: 68340, Start Num: 34

Candidate Starts for Trypo\_101:

(17, 68768), (Start: 19 @68765 has 3 MA's), (20, 68762), (Start: 34 @68675 has 221 MA's), (54, 68546), (55, 68534), (61, 68477), (69, 68423), (70, 68414), (76, 68378),

Gene: TyrionL\_101 Start: 68095, Stop: 67703, Start Num: 25

Candidate Starts for TyrionL\_101:

(Start: 19 @68131 has 3 MA's), (Start: 25 @68095 has 22 MA's), (Start: 34 @68038 has 221 MA's), (54, 67909), (55, 67897), (61, 67840), (69, 67786), (70, 67777), (76, 67741),

Gene: UAch1\_101 Start: 68034, Stop: 67696, Start Num: 34

Candidate Starts for UAch1\_101:

(11, 68208), (Start: 34 @68034 has 221 MA's), (38, 68019), (41, 67986), (46, 67950), (55, 67890), (67, 67785), (69, 67779), (74, 67746), (76, 67734),

Gene: UncleHowie\_97 Start: 67645, Stop: 67307, Start Num: 34

Candidate Starts for UncleHowie\_97:

(11, 67819), (Start: 34 @67645 has 221 MA's), (38, 67630), (41, 67597), (46, 67561), (55, 67501), (67, 67396), (69, 67390), (74, 67357), (76, 67345),

Gene: Usavi\_101 Start: 68807, Stop: 68469, Start Num: 34

Candidate Starts for Usavi\_101:

(11, 68981), (Start: 34 @68807 has 221 MA's), (38, 68792), (41, 68759), (46, 68723), (55, 68663), (67, 68558), (69, 68552), (74, 68519), (76, 68507),

Gene: Vaishali24\_101 Start: 68022, Stop: 67687, Start Num: 34

Candidate Starts for Vaishali24\_101:

(Start: 25 @68079 has 22 MA's), (Start: 34 @68022 has 221 MA's), (38, 68010), (41, 67977), (46, 67941), (55, 67881), (67, 67776), (69, 67770), (74, 67737), (76, 67725),

Gene: Valjean\_99 Start: 68189, Stop: 67851, Start Num: 34

Candidate Starts for Valjean\_99:

(11, 68363), (Start: 34 @68189 has 221 MA's), (38, 68174), (41, 68141), (46, 68105), (55, 68045), (67, 67940), (69, 67934), (74, 67901), (76, 67889),

Gene: Vaticameos\_98 Start: 66516, Stop: 66178, Start Num: 34

Candidate Starts for Vaticameos\_98:

(11, 66690), (Start: 34 @66516 has 221 MA's), (38, 66501), (41, 66468), (46, 66432), (55, 66372), (67, 66267), (69, 66261), (74, 66228), (76, 66216),

Gene: Veritas\_100 Start: 68119, Stop: 67784, Start Num: 34

Candidate Starts for Veritas\_100:

(Start: 19 @68212 has 3 MA's), (Start: 25 @68176 has 22 MA's), (Start: 34 @68119 has 221 MA's), (54, 67990), (55, 67978), (61, 67921), (69, 67867), (70, 67858), (76, 67822),

Gene: VioletZ\_88 Start: 66079, Stop: 65777, Start Num: 42

Candidate Starts for VioletZ\_88:

(7, 66466), (9, 66340), (Start: 35 @66136 has 1 MA's), (Start: 42 @66079 has 16 MA's), (49, 66037), (54, 66004), (55, 65992), (58, 65962), (61, 65935), (64, 65911), (67, 65878), (69, 65872), (71, 65857), (72, 65845), (74, 65839), (75, 65830),

Gene: Virapocalypse\_102 Start: 68311, Stop: 67973, Start Num: 34

Candidate Starts for Virapocalypse\_102:

(11, 68485), (Start: 34 @68311 has 221 MA's), (38, 68296), (41, 68263), (46, 68227), (55, 68167), (67, 68062), (69, 68056), (74, 68023), (76, 68011),

Gene: Virgeve\_99 Start: 67923, Stop: 67588, Start Num: 34

Candidate Starts for Virgeve\_99:

(17, 68016), (Start: 19 @68013 has 3 MA's), (20, 68010), (Start: 34 @67923 has 221 MA's), (54, 67794), (55, 67782), (61, 67725), (69, 67671), (70, 67662), (76, 67626),

Gene: Vista\_100 Start: 68123, Stop: 67785, Start Num: 34

Candidate Starts for Vista\_100:

(11, 68297), (Start: 34 @68123 has 221 MA's), (38, 68108), (41, 68075), (46, 68039), (55, 67979), (67, 67874), (69, 67868), (74, 67835), (76, 67823),

Gene: Vivaldi\_101 Start: 68277, Stop: 67942, Start Num: 34

Candidate Starts for Vivaldi\_101:

(20, 68367), (Start: 25 @68334 has 22 MA's), (Start: 34 @68277 has 221 MA's), (41, 68232), (46, 68196), (54, 68151), (55, 68139), (61, 68082), (69, 68028), (70, 68019), (76, 67983),

Gene: Vortex\_99 Start: 68223, Stop: 67888, Start Num: 34

Candidate Starts for Vortex\_99:

(17, 68316), (Start: 19 @68313 has 3 MA's), (20, 68310), (Start: 34 @68223 has 221 MA's), (54, 68094), (55, 68082), (61, 68025), (69, 67971), (70, 67962), (76, 67926),

Gene: Waleliano\_85 Start: 65747, Stop: 65445, Start Num: 42

Candidate Starts for Waleliano\_85:

(2, 66338), (7, 66134), (9, 66008), (Start: 18 @65921 has 1 MA's), (23, 65891), (26, 65876), (Start: 35 @65804 has 1 MA's), (Start: 42 @65747 has 16 MA's), (49, 65705), (54, 65672), (55, 65660), (58, 65630), (61, 65603), (64, 65579), (67, 65546), (69, 65540), (71, 65525), (72, 65513), (74, 65507), (75, 65498),

Gene: Wallhey\_102 Start: 68222, Stop: 67887, Start Num: 34

Candidate Starts for Wallhey\_102:

(Start: 19 @68315 has 3 MA's), (Start: 25 @68279 has 22 MA's), (Start: 34 @68222 has 221 MA's), (54, 68093), (55, 68081), (61, 68024), (69, 67970), (70, 67961), (76, 67925),

Gene: Waterdiva\_102 Start: 68495, Stop: 68157, Start Num: 34

Candidate Starts for Waterdiva\_102:

(11, 68669), (Start: 34 @68495 has 221 MA's), (38, 68480), (41, 68447), (46, 68411), (55, 68351), (67, 68246), (69, 68240), (74, 68207), (76, 68195),

Gene: Weher20\_98 Start: 68561, Stop: 68226, Start Num: 34

Candidate Starts for Weher20\_98:

(17, 68654), (Start: 19 @68651 has 3 MA's), (20, 68648), (Start: 34 @68561 has 221 MA's), (54, 68432), (55, 68420), (61, 68363), (69, 68309), (70, 68300), (76, 68264),

Gene: Windsor\_100 Start: 68245, Stop: 67913, Start Num: 34

Candidate Starts for Windsor\_100:

(Start: 25 @68302 has 22 MA's), (Start: 34 @68245 has 221 MA's), (41, 68200), (46, 68164), (54, 68119), (55, 68107), (61, 68050), (69, 67996), (70, 67987), (76, 67951),

Gene: Xavier\_100 Start: 68122, Stop: 67784, Start Num: 34

Candidate Starts for Xavier\_100:

(11, 68296), (Start: 34 @68122 has 221 MA's), (38, 68107), (41, 68074), (46, 68038), (55, 67978), (67, 67873), (69, 67867), (74, 67834), (76, 67822),

Gene: Yoshand\_102 Start: 68347, Stop: 68009, Start Num: 34

Candidate Starts for Yoshand\_102:

(11, 68521), (Start: 34 @68347 has 221 MA's), (38, 68332), (41, 68299), (46, 68263), (55, 68203), (67, 68098), (69, 68092), (74, 68059), (76, 68047),

Gene: YouGoGlencoco\_101 Start: 68237, Stop: 67899, Start Num: 34

Candidate Starts for YouGoGlencoco\_101:

(11, 68411), (Start: 34 @68237 has 221 MA's), (38, 68222), (41, 68189), (46, 68153), (55, 68093), (67, 67988), (69, 67982), (74, 67949), (76, 67937),

Gene: Zaider\_102 Start: 68612, Stop: 68274, Start Num: 34

Candidate Starts for Zaider\_102:

(11, 68786), (Start: 34 @68612 has 221 MA's), (38, 68597), (41, 68564), (46, 68528), (55, 68468), (67, 68363), (69, 68357), (74, 68324), (76, 68312),

Gene: Zelda\_101 Start: 68568, Stop: 68230, Start Num: 34

Candidate Starts for Zelda\_101:

(11, 68742), (Start: 34 @68568 has 221 MA's), (38, 68553), (41, 68520), (46, 68484), (55, 68424), (67, 68319), (69, 68313), (74, 68280), (76, 68268),

Gene: Zemanar\_85 Start: 65760, Stop: 65458, Start Num: 42

Candidate Starts for Zemanar\_85:

(7, 66147), (9, 66021), (Start: 35 @65817 has 1 MA's), (Start: 42 @65760 has 16 MA's), (49, 65718), (54, 65685), (55, 65673), (58, 65643), (64, 65592), (67, 65559), (69, 65553), (71, 65538), (72, 65526), (74, 65520), (75, 65511),

Gene: Zonia\_101 Start: 68729, Stop: 68337, Start Num: 25

Candidate Starts for Zonia\_101:

(Start: 19 @68765 has 3 MA's), (Start: 25 @68729 has 22 MA's), (Start: 34 @68672 has 221 MA's), (54, 68543), (55, 68531), (61, 68474), (69, 68420), (70, 68411), (76, 68375),