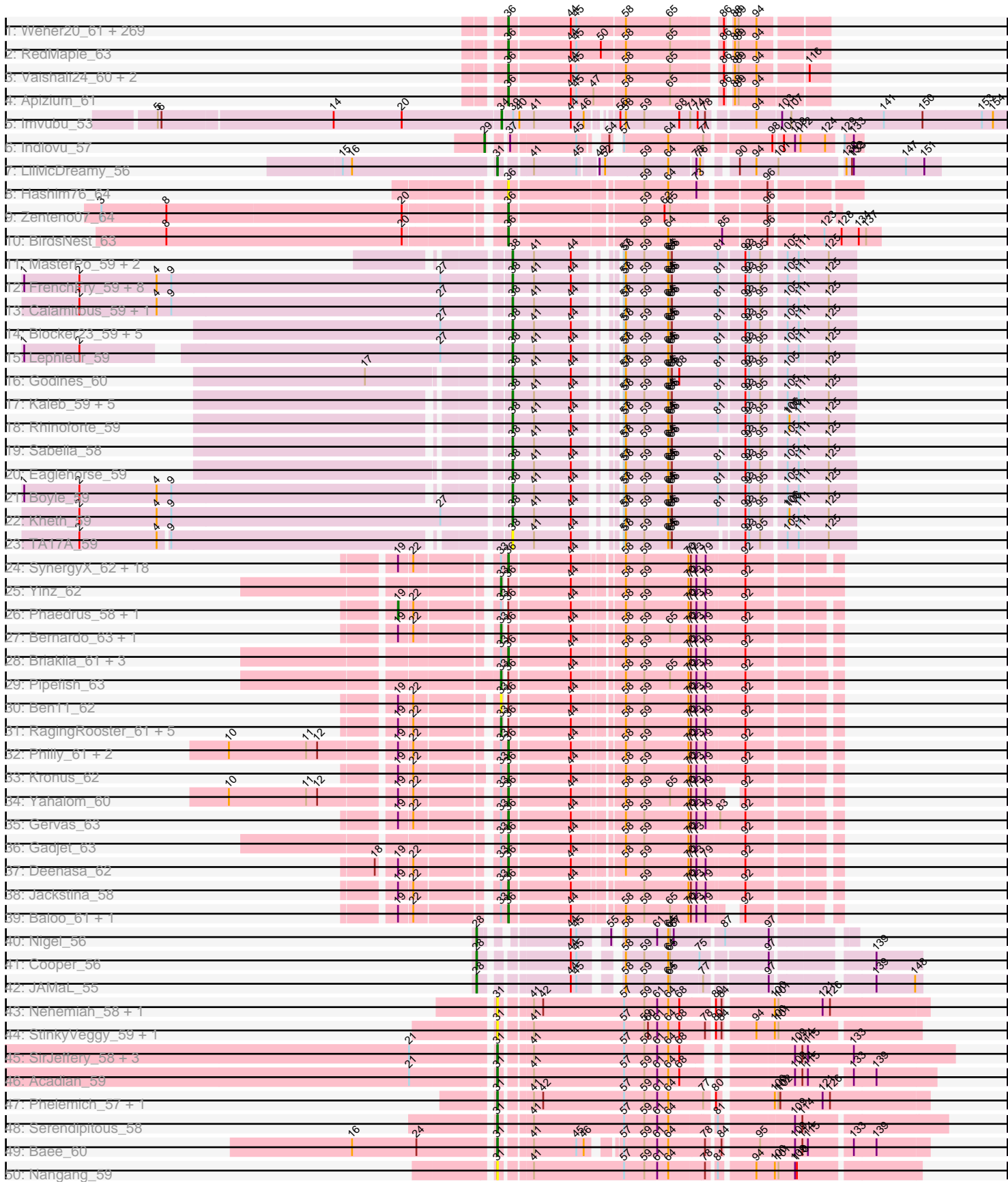
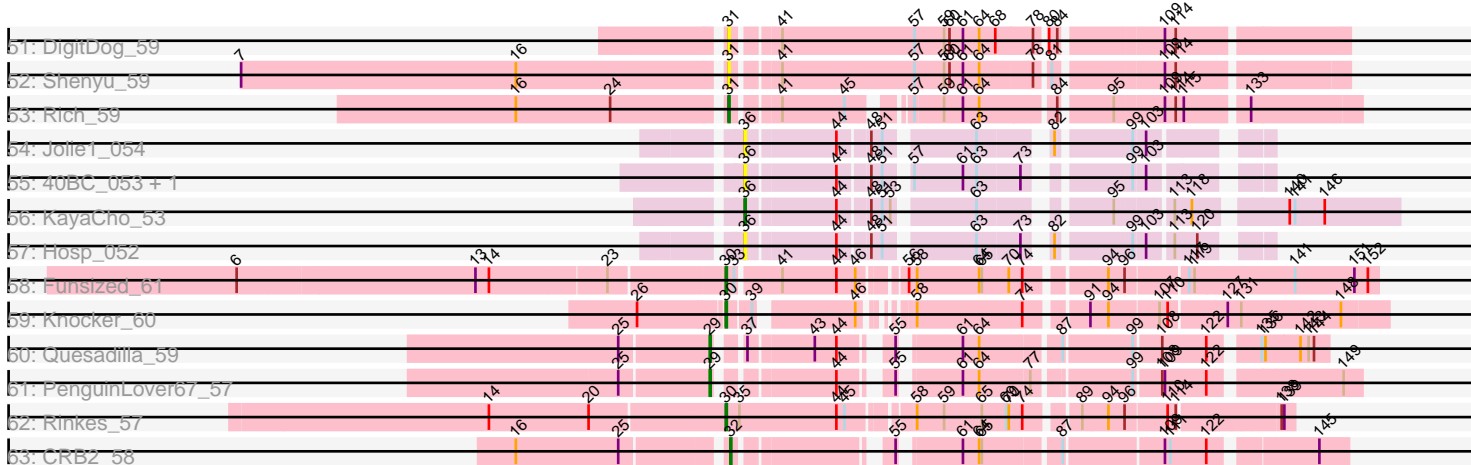


Pham 195340



Pham 195340



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 195340 Report

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

Pham number 195340 has 393 members, 30 are drafts.

Phages represented in each track:

- Track 1 : Weher20\_61, JDog\_60, Magic8\_62, FriarPreacher\_61, Zelda\_62, Murdoc\_60, DirtJuice\_62, EmpTee\_61, Podrick\_60, Mulan\_61, Pherdinand\_63, Prickles\_63, Soto\_60, Buckeye\_62, Orwigg\_62, Thora\_61, ImtiyazSitla\_63, Altwerkus\_59, Basato\_62, Derpp\_61, Fringe\_65, Swiphy\_65, Melc17\_61, Zonia\_63, Boehler\_61, Chaelin\_62, Aelin\_61, Cher\_61, Tomlahar\_62, OSmaximus\_63, ShiVal\_59, PG1\_62, Vortex\_61, Megamind20\_62, Pipsqueak\_60, Pacifista\_60, Chah\_63, Gwilliam\_63, SDcharge11\_61, Plmatters\_60, Jiminy\_62, Gareth\_61, Serpentine\_0061, Skippy\_62, Nacho\_0063, Iridoclysis\_62, Andre\_63, Nicole21\_62, Numberten\_61, JakeO\_62, Manad\_61, Simielle\_61, DelRivs\_60, Giraffe\_62, Waterdiva\_61, DoesntMatter\_59, MitKao\_61, Vista\_61, Dione\_59, Maru\_61, Selr12\_62, Pops\_61, Chunky\_60, Pinkman\_61, ThreeOh3D2\_63, Roy17\_60, BlackStallion\_63, FluffyNinja\_63, Bishoperium\_61, Windsor\_61, Schadenfreude\_61, Mcshane\_60, Olive\_61, Yoshand\_63, Ashraf\_63, UncleHowie\_60, SilverBell\_62, OliverWalter\_60, ProfessorX\_61, Eugenia\_61, Oline\_62, Phleuron\_62, Serendipity\_61, Rimu\_64, Mutante\_61, Inchworm\_63, MiniBoss\_59, Phergie\_63, Gyarad\_0060, Frankicide\_60, Mosaic\_60, LeeLot\_62, KLucky39\_60, Thunderbird\_61, Grand2040\_61, KlimbOn\_61, Inverness\_60, PinheadLarry\_62, Suffolk\_60, Kikipoo\_63, Doddsville\_62, Coletti\_64, Lopsy\_60, Sophia\_60, Etaye\_63, Surely\_61, TyrionL\_62, Chorkpop\_61, Morgushi\_61, Dati\_61, Childish\_61, Duggie\_62, Virapocalypse\_62, Newman\_60, Crownjwl\_61, Trypo\_64, Hocus\_61, Kailash\_62, Badfish\_62, Schueller\_63, Squid\_61, Morty\_62, Mana\_60, Daffy\_61, Hertubise\_61, QueenBeane\_61, Antonia\_61, Chute\_63, ABU\_62, Cornobble\_61, Hamish\_60, Kwadwo\_60, Freya\_59, JangoPhett\_61, Longacauda\_62, Virgeve\_61, Lego3393\_60, Toni\_61, LostAndPhound\_62, Horchata\_60, Scrick\_62, Haleema\_60, Spartan300\_61, Olak\_60, Mesh1\_63, Fang\_63, AbsoluteMadLad\_62, Keitherie\_63, PhrankReynolds\_61, Orion\_63, Sigman\_62, Durga\_64, MelsMeow\_62, Scoot17C\_62, Legolas\_63, Emiris\_64, Colbert\_60, LemonSlice\_62, Phareon\_60, Cobra\_63, Megatron\_62, GeneCoco\_62, Wallhey\_62, Swish\_63, Quisquilliae\_62, Bluephacebaby\_61, IsaacEli\_63, PhrodoBaggins\_62, DuchessDung\_63, Xavier\_60, Beaglebox\_61, CheetO\_61, Jillium\_61, LasagnaCat\_63, Vaticameos\_58, KingTut\_54, Slatt\_62, PhenghisKhan\_62, Eremos\_61, Solosis\_60, Katniss\_62, Dice\_60, True\_60, Harvey\_60, JacAttac\_63, Charles1\_62, DaddyDaniels\_63, Riggan\_62, Veritas\_63, Brilliant\_64, SassyCat97\_60, Lasso\_62, UAch1\_61, Phunky\_60, Squiggle\_62, Ricotta\_61, Omniscient\_62, AltPhacts\_61, PhatCats2014\_62, Phipps\_61, Mecca\_61, Held\_61, Potter\_60, Hartsy\_62, Soile\_62, Vivaldi\_63, Piglet\_0061, HenryJackson\_61, Fozzie\_62, CamL\_61, FugateOSU\_62, Sheila\_59, BlueHusk\_63, Orfeu\_60, LuckyMarjie\_59, Phamished\_63, Timmi\_60,

Mag7\_62, Lulumae\_59, Banjo\_60, CampRoach\_63, PhatLouie\_63, Kahve\_61, LeiMonet\_64, Tooj\_60, Telesworld\_59, YouGoGlencoco\_62, Maskar\_63, Nyala\_60, Anderson\_62, CharlieGBrown\_62, Jiraiya\_65, HSavage\_60, Placalicious\_62, TallGrassMM\_61, HighStump\_63, Cosmolli16\_62, Labeouficaum\_62, Lulwa\_59, Kwksand96\_62, MichaelPhcott\_62, Haimas\_60, MRabcd\_61, Cannibal\_61, Gophee\_63, Puhltonio\_61, Adriana\_63, Roliet\_59, Dingo\_60, Samaymay\_61, Kimbrough\_62, Roscoe\_62, Daka\_64, Hetaeria\_61, Usavi\_61, Oosterbaan\_61, Lumine\_62, Craff\_64, Burr\_61, Kloppinator\_62, Matalotodo\_61, Mikota\_60, KingVeVeVe\_60, Zaider\_62, Valjean\_61, TomBombadil\_61, Struggle\_62, MrPhizzler\_62, BatteryCK\_62, DonSanchon\_59

- Track 2 : RedMaple\_63
- Track 3 : Vaishali24\_60, Robyn\_61, Carthage\_60
- Track 4 : Apizium\_61
- Track 5 : Imvubu\_53
- Track 6 : Indlovu\_57
- Track 7 : LilMcDreamy\_56
- Track 8 : Hashim76\_64
- Track 9 : Zenteno07\_64
- Track 10 : BirdsNest\_63
- Track 11 : MasterPo\_59, Laurie\_59, Vic9\_60
- Track 12 : FrenchFry\_59, Bananafish\_59, Holeinone\_59, Lars\_59, Opia\_59, Glass\_59, Arbiter\_58, LizLemon\_59, Ares\_59
- Track 13 : Calamitous\_59, Qyrzula\_54
- Track 14 : Blocker23\_59, Coffee\_59, West99\_59, Phantasmagoria\_59, Faze9\_58, Allegro\_59
- Track 15 : Lephleur\_59
- Track 16 : Godines\_60
- Track 17 : Kaleb\_59, Brownie5\_59, Tinciduntolum\_60, Tres\_59, Rosebush\_58, Hedgerow\_59
- Track 18 : Rhinoforte\_59
- Track 19 : Sabella\_58
- Track 20 : Eaglehorse\_59
- Track 21 : Boyle\_59
- Track 22 : Kheth\_59
- Track 23 : TA17A\_59
- Track 24 : SynergyX\_62, MmasiCarm\_63, Kamiyu\_62, Athena\_64, ChaChing\_62, Neos5\_61, GlenHope\_63, SlippinJimmy\_64, Marley1013\_62, Akoma\_62, Daisy\_61, Rita1961\_63, HarveySr\_61, Nozo\_62, Corofin\_62, Tydolla\_59, Devonte\_61, Chandler\_62, OrangeOswald\_62
- Track 25 : Yinz\_62
- Track 26 : Phaedrus\_58, Morty007\_61
- Track 27 : Bernardo\_63, LestyG\_60
- Track 28 : Briakila\_61, Phayeta\_64, Casbah\_62, Halfpint\_61
- Track 29 : Pipefish\_63
- Track 30 : Ben11\_62
- Track 31 : RagingRooster\_61, RomaT\_62, Audrey\_62, Mortcellus\_62, Heathcliff\_62, Abinghost\_62
- Track 32 : Philly\_61, Obutu\_63, Compostia\_62
- Track 33 : Kronus\_62
- Track 34 : Yahalom\_60
- Track 35 : Gervas\_63
- Track 36 : Gadget\_63
- Track 37 : Deenasa\_62

- Track 38 : Jackstina\_58
- Track 39 : Baloo\_61, Phlyer\_62
- Track 40 : Nigel\_56
- Track 41 : Cooper\_56
- Track 42 : JAMaL\_55
- Track 43 : Nehemiah\_58, Mysterious\_59
- Track 44 : StinkyVeggy\_59, KarasumaRum\_59
- Track 45 : SirJeffery\_58, Donny\_60, Suigeneris\_60, EastView9101\_58
- Track 46 : Acadian\_59
- Track 47 : Phelemich\_57, Reprobate\_58
- Track 48 : Serendipitous\_58
- Track 49 : Bae\_60
- Track 50 : Nangang\_59
- Track 51 : DigitDog\_59
- Track 52 : Shenyu\_59
- Track 53 : Rich\_59
- Track 54 : Jolie1\_054
- Track 55 : 40BC\_053, 39HC\_053
- Track 56 : KayaCho\_53
- Track 57 : Hosp\_052
- Track 58 : Funsized\_61
- Track 59 : Knocker\_60
- Track 60 : Quesadilla\_59
- Track 61 : PenguinLover67\_57
- Track 62 : Rinkes\_57
- Track 63 : CRB2\_58

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

The start number called the most often in the published annotations is 36, it was called in 299 of the 363 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- 39HC\_053, 40BC\_053, ABU\_62, AbsoluteMadLad\_62, Adriana\_63, Aelin\_61, Akoma\_62, AltPhacts\_61, Altwerkus\_59, Anderson\_62, Andre\_63, Antonia\_61, Apizium\_61, Ashraf\_63, Athena\_64, Badfish\_62, Baloo\_61, Banjo\_60, Basato\_62, BatteryCK\_62, Beaglebox\_61, BirdsNest\_63, Bishoperium\_61, BlackStallion\_63, BlueHusk\_63, Bluephacebaby\_61, Bohler\_61, Briakila\_61, Brilliant\_64, Buckeye\_62, Burr\_61, CamL\_61, CampRoach\_63, Cannibal\_61, Carthage\_60, Casbah\_62, ChaChing\_62, Chaelin\_62, Chah\_63, Chandler\_62, Charles1\_62, CharlieGBrown\_62, CheetO\_61, Cher\_61, Childish\_61, Chorkpop\_61, Chunky\_60, Chute\_63, Cobra\_63, Colbert\_60, Coletti\_64, Compostia\_62, Cornobble\_61, Corofin\_62, Cosmolli16\_62, Craff\_64, Crownjwl\_61, DaddyDaniels\_63, Daffy\_61, Daisy\_61, Daka\_64, Dati\_61, Deenasa\_62, DelRivs\_60, Derpp\_61, Devonte\_61, Dice\_60, Dingo\_60, Dione\_59, DirtJuice\_62, Doddsville\_62, DoesntMatter\_59, DonSanchon\_59, DuchessDung\_63, Duggie\_62, Durga\_64, Emiris\_64, EmpTee\_61, Eremos\_61, Etaye\_63, Eugenia\_61, Fang\_63, FluffyNinja\_63, Fozzie\_62, Frankicide\_60, Freya\_59, FriarPreacher\_61, Fringe\_65, FugateOSU\_62, Gadjet\_63, Gareth\_61, GeneCoco\_62, Gervas\_63, Giraffe\_62, GlenHope\_63, Gophee\_63, Grand2040\_61, Gwilliam\_63, Gyarad\_0060, HSavage\_60, Haimas\_60, Haleema\_60,

Halfpint\_61, Hamish\_60, Hartsy\_62, HarveySr\_61, Harvey\_60, Hashim76\_64, Held\_61, HenryJackson\_61, Hertubise\_61, Hetaeria\_61, HighStump\_63, Hocus\_61, Horchata\_60, Hosp\_052, ImtiyazSitla\_63, Inchworm\_63, Inverness\_60, Iridoclysis\_62, IsaacEli\_63, JDog\_60, JacAttac\_63, Jackstina\_58, JakeO\_62, JangoPhett\_61, Jillium\_61, Jiminy\_62, Jiraiya\_65, Jolie1\_054, KLucky39\_60, Kahve\_61, Kailash\_62, Kamiyu\_62, Katniss\_62, KayaCho\_53, Keitherie\_63, Kikipoo\_63, Kimbrough\_62, KingTut\_54, KingVeVeVe\_60, KlimbOn\_61, Kloppinator\_62, Kronus\_62, Kwadwo\_60, Kwksand96\_62, Labeouficaum\_62, LasagnaCat\_63, Lasso\_62, LeeLot\_62, Lego3393\_60, Legolas\_63, LeiMonet\_64, LemonSlice\_62, Longacauda\_62, Lopsy\_60, LostAndPhound\_62, LuckyMarjie\_59, Lulumae\_59, Lulwa\_59, Lumine\_62, MRabcd\_61, Mag7\_62, Magic8\_62, Mana\_60, Manad\_61, Marley1013\_62, Maru\_61, Maskar\_63, Matalotodo\_61, Mcshane\_60, Mecca\_61, Megamind20\_62, Megatron\_62, Melc17\_61, MelsMeow\_62, Mesh1\_63, MichaelPhcott\_62, Mikota\_60, MiniBoss\_59, MitKao\_61, MmasiCarm\_63, Morgushi\_61, Morty\_62, Mosaic\_60, MrPhizzler\_62, Mulan\_61, Murdoc\_60, Mutante\_61, Nacho\_0063, Neos5\_61, Newman\_60, Nicole21\_62, Nozo\_62, Numberten\_61, Nyala\_60, OSmaximus\_63, Obutu\_63, Olak\_60, Oline\_62, Olive\_61, OliverWalter\_60, Omniscient\_62, Oosterbaan\_61, OrangeOswald\_62, Orfeu\_60, Orion\_63, Orwigg\_62, PG1\_62, Pacifista\_60, Phamished\_63, Phareon\_60, PhatCats2014\_62, PhatLouie\_63, Phayeta\_64, PhenghisKhan\_62, Pherdinand\_63, Phergie\_63, Philly\_61, Phipps\_61, Phleuron\_62, Phlyer\_62, PhrankReynolds\_61, PhrodoBaggins\_62, Phunky\_60, Piglet\_0061, PinheadLarry\_62, Pinkman\_61, Pipsqueak\_60, Placalicious\_62, Plmatters\_60, Podrick\_60, Pops\_61, Potter\_60, Prickles\_63, ProfessorX\_61, Puhltonio\_61, QueenBeane\_61, Quisquilliae\_62, RedMaple\_63, Ricotta\_61, Riggan\_62, Rimu\_64, Rita1961\_63, Robyn\_61, Roliet\_59, Roscoe\_62, Roy17\_60, SDcharge11\_61, Samaymay\_61, SassyCat97\_60, Schadenfreude\_61, Schueller\_63, Scoot17C\_62, Scrick\_62, Selr12\_62, Serendipity\_61, Serpentine\_0061, Sheila\_59, ShiVal\_59, Sigman\_62, SilverBell\_62, Simielle\_61, Skippy\_62, Slatt\_62, SlippinJimmy\_64, Soile\_62, Solosis\_60, Sophia\_60, Soto\_60, Spartan300\_61, Squid\_61, Squiggle\_62, Struggle\_62, Suffolk\_60, Surely\_61, Swiphy\_65, Swish\_63, SynergyX\_62, TallGrassMM\_61, Telesworld\_59, Thora\_61, ThreeOh3D2\_63, Thunderbird\_61, Timmi\_60, TomBombadil\_61, Tomlarah\_62, Toni\_61, Tooj\_60, True\_60, Trypo\_64, Tydolla\_59, TyrionL\_62, UAch1\_61, UncleHowie\_60, Usavi\_61, Vaishali24\_60, Valjean\_61, Vaticameos\_58, Veritas\_63, Virapocalypse\_62, Virgeve\_61, Vista\_61, Vivaldi\_63, Vortex\_61, Wallhey\_62, Waterdiva\_61, Weher20\_61, Windsor\_61, Xavier\_60, Yahalom\_60, Yoshand\_63, YouGoGlencoco\_62, Zaider\_62, Zelda\_62, Zenteno07\_64, Zonia\_63,

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

- Abinghost\_62, Audrey\_62, Ben11\_62, Bernardo\_63, Heathcliff\_62, LestyG\_60, Mortcellus\_62, Morty007\_61, Phaedrus\_58, Pipefish\_63, RagingRooster\_61, RomaT\_62, Yinz\_62,

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

- Acadian\_59, Allegro\_59, Arbiter\_58, Ares\_59, Bae\_60, Bananafish\_59, Blocker23\_59, Boyle\_59, Brownie5\_59, CRB2\_58, Calamitous\_59, Coffee\_59, Cooper\_56, DigitDog\_59, Donny\_60, Eaglehorse\_59, EastView9101\_58, Faze9\_58, FrenchFry\_59, Funsized\_61, Glass\_59, Godines\_60, Hedgerow\_59, Holeinone\_59, Imvubu\_53, Indlovu\_57, JAMaL\_55, Kaleb\_59, KarasumaRum\_59, Kheth\_59, Knocker\_60, Lars\_59, Laurie\_59, Lephleur\_59, LilMcDreamy\_56, LizLemon\_59, MasterPo\_59, Mysterious\_59, Nangang\_59, Nehemiah\_58, Nigel\_56, Opia\_59, PenguinLover67\_57, Phantasmagoria\_59, Phelemich\_57, Quesadilla\_59,

Qyrzula\_54, Reprobate\_58, Rhinoforte\_59, Rich\_59, Rinke\_57, Rosebush\_58, Sabella\_58, Serendipitous\_58, Shenyu\_59, SirJeffery\_58, StinkyVeggy\_59, Suigeneris\_60, TA17A\_59, Tinciduntolum\_60, Tres\_59, Vic9\_60, West99\_59,

### Summary by start number:

#### Start 19:

- Found in 40 of 393 ( 10.2% ) of genes in pham
- Manual Annotations of this start: 2 of 363
- Called 5.0% of time when present
- Phage (with cluster) where this start called: Morty007\_61 (B3), Phaedrus\_58 (B3),

#### Start 28:

- Found in 3 of 393 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 3 of 363
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Cooper\_56 (B4), JAMaL\_55 (B4), Nigel\_56 (B4),

#### Start 29:

- Found in 3 of 393 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 3 of 363
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Indlovu\_57 (B11), PenguinLover67\_57 (B9), Quesadilla\_59 (B9),

#### Start 30:

- Found in 3 of 393 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 3 of 363
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Funsized\_61 (B9), Knocker\_60 (B9), Rinke\_57 (B9),

#### Start 31:

- Found in 18 of 393 ( 4.6% ) of genes in pham
- Manual Annotations of this start: 10 of 363
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Acadian\_59 (B5), Bae\_60 (B5), DigitDog\_59 (B5), Donny\_60 (B5), EastView9101\_58 (B5), KarasumaRum\_59 (B5), LilMcDreamy\_56 (B12), Mysterious\_59 (B5), Nangang\_59 (B5), Nehemiah\_58 (B5), Phelemich\_57 (B5), Reprobate\_58 (B5), Rich\_59 (B5), Serendipitous\_58 (B5), Shenyu\_59 (B5), SirJeffery\_58 (B5), StinkyVeggy\_59 (B5), Suigeneris\_60 (B5),

#### Start 32:

- Found in 1 of 393 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 363
- Called 100.0% of time when present
- Phage (with cluster) where this start called: CRB2\_58 (B9),

#### Start 33:

- Found in 48 of 393 ( 12.2% ) of genes in pham
- Manual Annotations of this start: 10 of 363
- Called 22.9% of time when present

- Phage (with cluster) where this start called: Abinghost\_62 (B3), Audrey\_62 (B3), Ben11\_62 (B3), Bernardo\_63 (B3), Heathcliff\_62 (B3), LestyG\_60 (B3), Mortcellus\_62 (B3), Pipefish\_63 (B3), RagingRooster\_61 (B3), RomaT\_62 (B3), Yinz\_62 (B3),

#### Start 34:

- Found in 1 of 393 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 363
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Imvubu\_53 (B10),

#### Start 36:

- Found in 330 of 393 ( 84.0% ) of genes in pham
- Manual Annotations of this start: 299 of 363
- Called 96.1% of time when present
- Phage (with cluster) where this start called: 39HC\_053 (B6), 40BC\_053 (B6), ABU\_62 (B1), AbsoluteMadLad\_62 (B1), Adriana\_63 (B1), Aelin\_61 (B1), Akoma\_62 (B3), AltPhacts\_61 (B1), Altwerkus\_59 (B1), Anderson\_62 (B1), Andre\_63 (B1), Antonia\_61 (B1), Apizium\_61 (B1), Ashraf\_63 (B1), Athena\_64 (B3), Badfish\_62 (B1), Baloo\_61 (B3), Banjo\_60 (B1), Basato\_62 (B1), BatteryCK\_62 (B1), Beaglebox\_61 (B1), BirdsNest\_63 (B13), Bishoperium\_61 (B1), BlackStallion\_63 (B1), BlueHusk\_63 (B1), Bluephacebaby\_61 (B1), Boehler\_61 (B1), Briakila\_61 (B3), Brilliant\_64 (B1), Buckeye\_62 (B1), Burr\_61 (B1), CamL\_61 (B1), CampRoach\_63 (B1), Cannibal\_61 (B1), Carthage\_60 (B1), Casbah\_62 (B3), ChaChing\_62 (B3), Chaelin\_62 (B1), Chah\_63 (B1), Chandler\_62 (B3), Charles1\_62 (B1), CharlieGBrown\_62 (B1), CheetO\_61 (B1), Cher\_61 (B1), Childish\_61 (B1), Chorkpop\_61 (B1), Chunky\_60 (B1), Chute\_63 (B1), Cobra\_63 (B1), Colbert\_60 (B1), Coletti\_64 (B1), Compostia\_62 (B3), Cornobble\_61 (B1), Corofin\_62 (B3), Cosmolli16\_62 (B1), Craff\_64 (B1), Crownjwl\_61 (B1), DaddyDaniels\_63 (B1), Daffy\_61 (B1), Daisy\_61 (B3), Daka\_64 (B1), Dati\_61 (B1), Deenasa\_62 (B3), DelRivs\_60 (B1), Derpp\_61 (B1), Devonte\_61 (B3), Dice\_60 (B1), Dingo\_60 (B1), Dione\_59 (B1), DirtJuice\_62 (B1), Doddsville\_62 (B1), DoesntMatter\_59 (B1), DonSanchon\_59 (B1), DuchessDung\_63 (B1), Duggie\_62 (B1), Durga\_64 (B1), Emiris\_64 (B1), EmpTee\_61 (B1), Eremos\_61 (B1), Etaye\_63 (B1), Eugenia\_61 (B1), Fang\_63 (B1), FluffyNinja\_63 (B1), Fozzie\_62 (B1), Frankicide\_60 (B1), Freya\_59 (B1), FriarPreacher\_61 (B1), Fringe\_65 (B1), FugateOSU\_62 (B1), Gadjet\_63 (B3), Gareth\_61 (B1), GeneCoco\_62 (B1), Gervas\_63 (B3), Giraffe\_62 (B1), GlenHope\_63 (B3), Gophee\_63 (B1), Grand2040\_61 (B1), Gwilliam\_63 (B1), Gyarad\_0060 (B1), HSavage\_60 (B1), Haimas\_60 (B1), Haleema\_60 (B1), Halfpint\_61 (B3), Hamish\_60 (B1), Hartsy\_62 (B1), HarveySr\_61 (B3), Harvey\_60 (B1), Hashim76\_64 (B13), Held\_61 (B1), HenryJackson\_61 (B1), Hertubise\_61 (B1), Hetaeria\_61 (B1), HighStump\_63 (B1), Hocus\_61 (B1), Horchata\_60 (B1), Hosp\_052 (B6), ImtiyazSitla\_63 (B1), Inchworm\_63 (B1), Inverness\_60 (B1), Iridoclysis\_62 (B1), IsaacEli\_63 (B1), JDog\_60 (B1), JacAttac\_63 (B1), Jackstina\_58 (B3), JakeO\_62 (B1), JangoPhett\_61 (B1), Jillium\_61 (B1), Jiminy\_62 (B1), Jiraiya\_65 (B1), Jolie1\_054 (B6), KLUcky39\_60 (B1), Kahve\_61 (B1), Kailash\_62 (B1), Kamiyu\_62 (B3), Katniss\_62 (B1), KayaCho\_53 (B6), Keitherie\_63 (B1), Kikipoo\_63 (B1), Kimbrough\_62 (B1), KingTut\_54 (B1), KingVeVeVe\_60 (B1), KlimbOn\_61 (B1), Kloppinator\_62 (B1), Kronus\_62 (B3), Kwadwo\_60 (B1), Kwksand96\_62 (B1), Labeouficaum\_62 (B1), LasagnaCat\_63 (B1), Lasso\_62 (B1), LeeLot\_62 (B1), Lego3393\_60 (B1), Legolas\_63 (B1), LeiMonet\_64 (B1), LemonSlice\_62 (B1), Longacauda\_62 (B1), Lopsy\_60 (B1), LostAndPhound\_62 (B1), LuckyMarjie\_59 (B1), Lulumae\_59 (B1), Lulwa\_59 (B1), Lumine\_62 (B1), MRabcd\_61 (B1), Mag7\_62 (B1),



Magic8\_62 (B1), Mana\_60 (B1), Manad\_61 (B1), Marley1013\_62 (B3), Maru\_61 (B1), Maskar\_63 (B1), Matalotodo\_61 (B1), Mcshane\_60 (B1), Mecca\_61 (B1), Megamind20\_62 (B1), Megatron\_62 (B1), Melc17\_61 (B1), MelsMeow\_62 (B1), Mesh1\_63 (B1), MichaelPhcott\_62 (B1), Mikota\_60 (B1), MiniBoss\_59 (B1), MitKao\_61 (B1), MmasiCarm\_63 (B3), Morgushi\_61 (B1), Morty\_62 (B1), Mosaic\_60 (B1), MrPhizzler\_62 (B1), Mulan\_61 (B1), Murdoc\_60 (B1), Mutante\_61 (B1), Nacho\_0063 (B1), Neos5\_61 (B3), Newman\_60 (B1), Nicole21\_62 (B1), Nozo\_62 (B3), Numberten\_61 (B1), Nyala\_60 (B1), OSmaximus\_63 (B1), Obutu\_63 (B3), Olak\_60 (B1), Oline\_62 (B1), Olive\_61 (B1), OliverWalter\_60 (B1), Omniscient\_62 (B1), Oosterbaan\_61 (B1), OrangeOSwald\_62 (B3), Orfeu\_60 (B1), Orion\_63 (B1), Orwigg\_62 (B1), PG1\_62 (B1), Pacifista\_60 (B1), Phamished\_63 (B1), Phareon\_60 (B1), PhatCats2014\_62 (B1), PhatLouie\_63 (B1), Phayeta\_64 (B3), PhenghisKhan\_62 (B1), Pherdinand\_63 (B1), Phergie\_63 (B1), Philly\_61 (B3), Phipps\_61 (B1), Phleuron\_62 (B1), Phlyer\_62 (B3), PhrankReynolds\_61 (B1), PhrodoBaggins\_62 (B1), Phunky\_60 (B1), Piglet\_0061 (B1), PinheadLarry\_62 (B1), Pinkman\_61 (B1), Pipsqueak\_60 (B1), Placalicious\_62 (B1), Plmatters\_60 (B1), Podrick\_60 (B1), Pops\_61 (B1), Potter\_60 (B1), Prickles\_63 (B1), ProfessorX\_61 (B1), Puhltonio\_61 (B1), QueenBeane\_61 (B1), Quisquiliae\_62 (B1), RedMaple\_63 (B1), Ricotta\_61 (B1), Riggan\_62 (B1), Rimu\_64 (B1), Rita1961\_63 (B3), Robyn\_61 (B1), Roliet\_59 (B1), Roscoe\_62 (B1), Roy17\_60 (B1), SDcharge11\_61 (B1), Samaymay\_61 (B1), SassyCat97\_60 (B1), Schadenfreude\_61 (B1), Schueller\_63 (B1), Scoot17C\_62 (B1), Scrick\_62 (B1), Selr12\_62 (B1), Serendipity\_61 (B1), Serpentine\_0061 (B1), Sheila\_59 (B1), ShiVal\_59 (B1), Sigman\_62 (B1), SilverBell\_62 (B1), Simielle\_61 (B1), Skippy\_62 (B1), Slatt\_62 (B1), SlippinJimmy\_64 (B3), Soile\_62 (B1), Solosis\_60 (B1), Sophia\_60 (B1), Soto\_60 (B1), Spartan300\_61 (B1), Squid\_61 (B1), Squiggle\_62 (B1), Struggle\_62 (B1), Suffolk\_60 (B1), Surely\_61 (B1), Swiphy\_65 (B1), Swish\_63 (B1), SynergyX\_62 (B3), TallGrassMM\_61 (B1), Telesworld\_59 (B1), Thora\_61 (B1), ThreeOh3D2\_63 (B1), Thunderbird\_61 (B1), Timmi\_60 (B1), TomBombadil\_61 (B1), Tomlarah\_62 (B1), Toni\_61 (B1), Tooj\_60 (B1), True\_60 (B1), Trypo\_64 (B1), Tydolla\_59 (B3), TyrionL\_62 (B1), UAch1\_61 (B1), UncleHowie\_60 (B1), Usavi\_61 (B1), Vaishali24\_60 (B1), Valjean\_61 (B1), Vaticameos\_58 (B1), Veritas\_63 (B1), Virapocalypse\_62 (B1), Virgeve\_61 (B1), Vista\_61 (B1), Vivaldi\_63 (B1), Vortex\_61 (B1), Wallhey\_62 (B1), Waterdiva\_61 (B1), Weher20\_61 (B1), Windsor\_61 (B1), Xavier\_60 (B1), Yahalom\_60 (B3), Yoshand\_63 (B1), YouGoGlencoco\_62 (B1), Zaider\_62 (B1), Zelda\_62 (B1), Zenteno07\_64 (B13), Zonia\_63 (B1),

Start 38:

- Found in 34 of 393 ( 8.7% ) of genes in pham
- Manual Annotations of this start: 31 of 363
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Allegro\_59 (B2), Arbiter\_58 (B2), Ares\_59 (B2), Bananafish\_59 (B2), Blocker23\_59 (B2), Boyle\_59 (B2), Brownie5\_59 (B2), Calamitous\_59 (B2), Coffee\_59 (B2), Eaglehorse\_59 (B2), Faze9\_58 (B2), FrenchFry\_59 (B2), Glass\_59 (B2), Godines\_60 (B2), Hedgerow\_59 (B2), Holeinone\_59 (B2), Kaleb\_59 (B2), Kheth\_59 (B2), Lars\_59 (B2), Laurie\_59 (B2), Lephleur\_59 (B2), LizLemon\_59 (B2), MasterPo\_59 (B2), Opia\_59 (B2), Phantasmagoria\_59 (B2), Qyrzula\_54 (B2), Rhinoforte\_59 (B2), Rosebush\_58 (B2), Sabella\_58 (B2), TA17A\_59 (B2), Tinciduntolum\_60 (B2), Tres\_59 (B2), Vic9\_60 (B2), West99\_59 (B2),

**Summary by clusters:**

There are 11 clusters represented in this pham: B10, B11, B4, B5, B6, B12, B1, B2, B3, B9, B13,

Info for manual annotations of cluster B1:

- Start number 36 was manually annotated 263 times for cluster B1.

Info for manual annotations of cluster B10:

- Start number 34 was manually annotated 1 time for cluster B10.

Info for manual annotations of cluster B11:

- Start number 29 was manually annotated 1 time for cluster B11.

Info for manual annotations of cluster B12:

- Start number 31 was manually annotated 1 time for cluster B12.

Info for manual annotations of cluster B13:

- Start number 36 was manually annotated 2 times for cluster B13.

Info for manual annotations of cluster B2:

- Start number 38 was manually annotated 31 times for cluster B2.

Info for manual annotations of cluster B3:

- Start number 19 was manually annotated 2 times for cluster B3.
- Start number 33 was manually annotated 10 times for cluster B3.
- Start number 36 was manually annotated 33 times for cluster B3.

Info for manual annotations of cluster B4:

- Start number 28 was manually annotated 3 times for cluster B4.

Info for manual annotations of cluster B5:

- Start number 31 was manually annotated 9 times for cluster B5.

Info for manual annotations of cluster B6:

- Start number 36 was manually annotated 1 time for cluster B6.

Info for manual annotations of cluster B9:

- Start number 29 was manually annotated 2 times for cluster B9.
- Start number 30 was manually annotated 3 times for cluster B9.
- Start number 32 was manually annotated 1 time for cluster B9.

### ***Gene Information:***

Gene: 39HC\_053 Start: 53120, Stop: 52647, Start Num: 36

Candidate Starts for 39HC\_053:

(Start: 36 @53120 has 299 MA's), (44, 53027), (48, 52997), (51, 52985), (57, 52967), (61, 52913), (63, 52898), (73, 52853), (99, 52766), (103, 52754),

Gene: 40BC\_053 Start: 53120, Stop: 52647, Start Num: 36

Candidate Starts for 40BC\_053:

(Start: 36 @53120 has 299 MA's), (44, 53027), (48, 52997), (51, 52985), (57, 52967), (61, 52913), (63, 52898), (73, 52853), (99, 52766), (103, 52754),

Gene: ABU\_62 Start: 54987, Stop: 54529, Start Num: 36

Candidate Starts for ABU\_62:

(Start: 36 @54987 has 299 MA's), (44, 54891), (45, 54882), (58, 54807), (65, 54735), (86, 54669), (88, 54663), (89, 54657), (94, 54630),

Gene: Abinghost\_62 Start: 54965, Stop: 54486, Start Num: 33

Candidate Starts for Abinghost\_62:

(Start: 19 @55097 has 2 MA's), (22, 55076), (Start: 33 @54965 has 10 MA's), (Start: 36 @54962 has 299 MA's), (44, 54866), (58, 54800), (59, 54770), (70, 54698), (72, 54695), (73, 54686), (79, 54671), (92, 54614),

Gene: AbsoluteMadLad\_62 Start: 54941, Stop: 54483, Start Num: 36

Candidate Starts for AbsoluteMadLad\_62:

(Start: 36 @54941 has 299 MA's), (44, 54845), (45, 54836), (58, 54761), (65, 54689), (86, 54623), (88, 54617), (89, 54611), (94, 54584),

Gene: Acadian\_59 Start: 55108, Stop: 54467, Start Num: 31

Candidate Starts for Acadian\_59:

(21, 55234), (Start: 31 @55108 has 10 MA's), (41, 55066), (57, 54919), (59, 54886), (61, 54865), (64, 54847), (68, 54829), (109, 54682), (114, 54670), (115, 54661), (133, 54598), (139, 54562),

Gene: Adriana\_63 Start: 55568, Stop: 55110, Start Num: 36

Candidate Starts for Adriana\_63:

(Start: 36 @55568 has 299 MA's), (44, 55472), (45, 55463), (58, 55388), (65, 55316), (86, 55250), (88, 55244), (89, 55238), (94, 55211),

Gene: Aelin\_61 Start: 54505, Stop: 54047, Start Num: 36

Candidate Starts for Aelin\_61:

(Start: 36 @54505 has 299 MA's), (44, 54409), (45, 54400), (58, 54325), (65, 54253), (86, 54187), (88, 54181), (89, 54175), (94, 54148),

Gene: Akoma\_62 Start: 55010, Stop: 54534, Start Num: 36

Candidate Starts for Akoma\_62:

(Start: 19 @55145 has 2 MA's), (22, 55124), (Start: 33 @55013 has 10 MA's), (Start: 36 @55010 has 299 MA's), (44, 54914), (58, 54848), (59, 54818), (70, 54746), (72, 54743), (73, 54734), (79, 54719), (92, 54662),

Gene: Allegro\_59 Start: 53342, Stop: 52851, Start Num: 38

Candidate Starts for Allegro\_59:

(27, 53444), (Start: 38 @53342 has 31 MA's), (41, 53309), (44, 53249), (57, 53207), (58, 53204), (59, 53174), (64, 53135), (65, 53132), (66, 53129), (81, 53054), (92, 53015), (93, 53009), (95, 52991), (105, 52958), (111, 52940), (125, 52895),

Gene: AltPhacts\_61 Start: 54054, Stop: 53596, Start Num: 36

Candidate Starts for AltPhacts\_61:

(Start: 36 @54054 has 299 MA's), (44, 53958), (45, 53949), (58, 53874), (65, 53802), (86, 53736), (88, 53730), (89, 53724), (94, 53697),

Gene: Altwerkus\_59 Start: 54151, Stop: 53693, Start Num: 36

Candidate Starts for Altwerkus\_59:

(Start: 36 @54151 has 299 MA's), (44, 54055), (45, 54046), (58, 53971), (65, 53899), (86, 53833), (88, 53827), (89, 53821), (94, 53794),

Gene: Anderson\_62 Start: 54723, Stop: 54265, Start Num: 36

Candidate Starts for Anderson\_62:

(Start: 36 @54723 has 299 MA's), (44, 54627), (45, 54618), (58, 54543), (65, 54471), (86, 54405), (88, 54399), (89, 54393), (94, 54366),

Gene: Andre\_63 Start: 54899, Stop: 54441, Start Num: 36

Candidate Starts for Andre\_63:

(Start: 36 @54899 has 299 MA's), (44, 54803), (45, 54794), (58, 54719), (65, 54647), (86, 54581), (88, 54575), (89, 54569), (94, 54542),

Gene: Antonia\_61 Start: 54505, Stop: 54047, Start Num: 36

Candidate Starts for Antonia\_61:

(Start: 36 @54505 has 299 MA's), (44, 54409), (45, 54400), (58, 54325), (65, 54253), (86, 54187), (88, 54181), (89, 54175), (94, 54148),

Gene: Apizium\_61 Start: 54172, Stop: 53708, Start Num: 36

Candidate Starts for Apizium\_61:

(Start: 36 @54172 has 299 MA's), (44, 54076), (45, 54067), (47, 54040), (58, 53992), (65, 53920), (86, 53854), (88, 53848), (89, 53842), (94, 53815),

Gene: Arbiter\_58 Start: 53454, Stop: 52963, Start Num: 38

Candidate Starts for Arbiter\_58:

(1, 54234), (2, 54144), (4, 54018), (9, 53994), (27, 53556), (Start: 38 @53454 has 31 MA's), (41, 53421), (44, 53361), (57, 53319), (58, 53316), (59, 53286), (64, 53247), (65, 53244), (66, 53241), (81, 53166), (92, 53127), (93, 53121), (95, 53103), (105, 53070), (111, 53052), (125, 53007),

Gene: Ares\_59 Start: 53423, Stop: 52935, Start Num: 38

Candidate Starts for Ares\_59:

(1, 54203), (2, 54113), (4, 53987), (9, 53963), (27, 53525), (Start: 38 @53423 has 31 MA's), (41, 53390), (44, 53330), (57, 53288), (58, 53285), (59, 53255), (64, 53216), (65, 53213), (66, 53210), (81, 53135), (92, 53096), (93, 53090), (95, 53072), (105, 53039), (111, 53021), (125, 52976),

Gene: Ashraf\_63 Start: 54718, Stop: 54254, Start Num: 36

Candidate Starts for Ashraf\_63:

(Start: 36 @54718 has 299 MA's), (44, 54622), (45, 54613), (58, 54538), (65, 54466), (86, 54400), (88, 54394), (89, 54388), (94, 54361),

Gene: Athena\_64 Start: 55745, Stop: 55269, Start Num: 36

Candidate Starts for Athena\_64:

(Start: 19 @55880 has 2 MA's), (22, 55859), (Start: 33 @55748 has 10 MA's), (Start: 36 @55745 has 299 MA's), (44, 55649), (58, 55583), (59, 55553), (70, 55481), (72, 55478), (73, 55469), (79, 55454), (92, 55397),

Gene: Audrey\_62 Start: 55004, Stop: 54525, Start Num: 33

Candidate Starts for Audrey\_62:

(Start: 19 @55136 has 2 MA's), (22, 55115), (Start: 33 @55004 has 10 MA's), (Start: 36 @55001 has 299 MA's), (44, 54905), (58, 54839), (59, 54809), (70, 54737), (72, 54734), (73, 54725), (79, 54710), (92, 54653),

Gene: Badfish\_62 Start: 55009, Stop: 54551, Start Num: 36

Candidate Starts for Badfish\_62:

(Start: 36 @55009 has 299 MA's), (44, 54913), (45, 54904), (58, 54829), (65, 54757), (86, 54691), (88, 54685), (89, 54679), (94, 54652),

Gene: Bae\_60 Start: 56166, Stop: 55558, Start Num: 31

Candidate Starts for Bae\_60:

(16, 56388), (24, 56283), (Start: 31 @56166 has 10 MA's), (41, 56124), (45, 56055), (46, 56043), (57, 56007), (59, 55977), (61, 55956), (64, 55938), (78, 55881), (84, 55863), (95, 55812), (109, 55761), (114, 55749), (115, 55740), (133, 55677), (139, 55641),

Gene: Baloo\_61 Start: 54834, Stop: 54385, Start Num: 36

Candidate Starts for Baloo\_61:

(Start: 19 @54969 has 2 MA's), (22, 54948), (Start: 33 @54837 has 10 MA's), (Start: 36 @54834 has 299 MA's), (44, 54738), (58, 54672), (59, 54642), (65, 54600), (70, 54570), (72, 54567), (73, 54558), (79, 54543), (92, 54510),

Gene: Bananafish\_59 Start: 53354, Stop: 52863, Start Num: 38

Candidate Starts for Bananafish\_59:

(1, 54134), (2, 54044), (4, 53918), (9, 53894), (27, 53456), (Start: 38 @53354 has 31 MA's), (41, 53321), (44, 53261), (57, 53219), (58, 53216), (59, 53186), (64, 53147), (65, 53144), (66, 53141), (81, 53066), (92, 53027), (93, 53021), (95, 53003), (105, 52970), (111, 52952), (125, 52907),

Gene: Banjo\_60 Start: 54498, Stop: 54040, Start Num: 36

Candidate Starts for Banjo\_60:

(Start: 36 @54498 has 299 MA's), (44, 54402), (45, 54393), (58, 54318), (65, 54246), (86, 54180), (88, 54174), (89, 54168), (94, 54141),

Gene: Basato\_62 Start: 54772, Stop: 54314, Start Num: 36

Candidate Starts for Basato\_62:

(Start: 36 @54772 has 299 MA's), (44, 54676), (45, 54667), (58, 54592), (65, 54520), (86, 54454), (88, 54448), (89, 54442), (94, 54415),

Gene: BatteryCK\_62 Start: 54654, Stop: 54190, Start Num: 36

Candidate Starts for BatteryCK\_62:

(Start: 36 @54654 has 299 MA's), (44, 54558), (45, 54549), (58, 54474), (65, 54402), (86, 54336), (88, 54330), (89, 54324), (94, 54297),

Gene: Beaglebox\_61 Start: 54562, Stop: 54104, Start Num: 36

Candidate Starts for Beaglebox\_61:

(Start: 36 @54562 has 299 MA's), (44, 54466), (45, 54457), (58, 54382), (65, 54310), (86, 54244), (88, 54238), (89, 54232), (94, 54205),

Gene: Ben11\_62 Start: 55219, Stop: 54740, Start Num: 33

Candidate Starts for Ben11\_62:

(Start: 19 @55354 has 2 MA's), (22, 55333), (Start: 33 @55219 has 10 MA's), (Start: 36 @55216 has 299 MA's), (44, 55120), (58, 55054), (59, 55024), (70, 54952), (72, 54949), (73, 54940), (79, 54925), (92, 54868),

Gene: Bernardo\_63 Start: 55359, Stop: 54877, Start Num: 33

Candidate Starts for Bernardo\_63:

(Start: 19 @55491 has 2 MA's), (22, 55470), (Start: 33 @55359 has 10 MA's), (Start: 36 @55356 has 299 MA's), (44, 55260), (58, 55194), (59, 55164), (65, 55122), (70, 55092), (72, 55089), (73, 55080), (79, 55065), (92, 55005),

Gene: BirdsNest\_63 Start: 54973, Stop: 54419, Start Num: 36

Candidate Starts for BirdsNest\_63:

(8, 55486), (20, 55102), (Start: 36 @54973 has 299 MA's), (59, 54775), (64, 54736), (85, 54652), (96, 54586), (123, 54508), (128, 54481), (134, 54454), (137, 54442),

Gene: Bishoperium\_61 Start: 55037, Stop: 54579, Start Num: 36

Candidate Starts for Bishoperium\_61:

(Start: 36 @55037 has 299 MA's), (44, 54941), (45, 54932), (58, 54857), (65, 54785), (86, 54719), (88, 54713), (89, 54707), (94, 54680),

Gene: BlackStallion\_63 Start: 54766, Stop: 54308, Start Num: 36

Candidate Starts for BlackStallion\_63:

(Start: 36 @54766 has 299 MA's), (44, 54670), (45, 54661), (58, 54586), (65, 54514), (86, 54448), (88, 54442), (89, 54436), (94, 54409),

Gene: Blocker23\_59 Start: 53464, Stop: 52973, Start Num: 38

Candidate Starts for Blocker23\_59:

(27, 53566), (Start: 38 @53464 has 31 MA's), (41, 53431), (44, 53371), (57, 53329), (58, 53326), (59, 53296), (64, 53257), (65, 53254), (66, 53251), (81, 53176), (92, 53137), (93, 53131), (95, 53113), (105, 53080), (111, 53062), (125, 53017),

Gene: BlueHusk\_63 Start: 54521, Stop: 54063, Start Num: 36

Candidate Starts for BlueHusk\_63:

(Start: 36 @54521 has 299 MA's), (44, 54425), (45, 54416), (58, 54341), (65, 54269), (86, 54203), (88, 54197), (89, 54191), (94, 54164),

Gene: Bluephacebaby\_61 Start: 55040, Stop: 54582, Start Num: 36

Candidate Starts for Bluephacebaby\_61:

(Start: 36 @55040 has 299 MA's), (44, 54944), (45, 54935), (58, 54860), (65, 54788), (86, 54722), (88, 54716), (89, 54710), (94, 54683),

Gene: Boehler\_61 Start: 54684, Stop: 54226, Start Num: 36

Candidate Starts for Boehler\_61:

(Start: 36 @54684 has 299 MA's), (44, 54588), (45, 54579), (58, 54504), (65, 54432), (86, 54366), (88, 54360), (89, 54354), (94, 54327),

Gene: Boyle\_59 Start: 53493, Stop: 53002, Start Num: 38

Candidate Starts for Boyle\_59:

(1, 54243), (2, 54153), (4, 54027), (9, 54003), (Start: 38 @53493 has 31 MA's), (41, 53460), (44, 53400), (57, 53358), (58, 53355), (59, 53325), (64, 53286), (65, 53283), (66, 53280), (81, 53205), (92, 53166), (93, 53160), (95, 53142), (105, 53109), (111, 53091), (125, 53046),

Gene: Briakila\_61 Start: 54974, Stop: 54498, Start Num: 36

Candidate Starts for Briakila\_61:

(Start: 33 @54977 has 10 MA's), (Start: 36 @54974 has 299 MA's), (44, 54878), (58, 54812), (59, 54782), (70, 54710), (72, 54707), (73, 54698), (79, 54683), (92, 54626),

Gene: Brilliant\_64 Start: 55005, Stop: 54541, Start Num: 36

Candidate Starts for Brilliant\_64:

(Start: 36 @55005 has 299 MA's), (44, 54909), (45, 54900), (58, 54825), (65, 54753), (86, 54687), (88, 54681), (89, 54675), (94, 54648),

Gene: Brownie5\_59 Start: 53503, Stop: 53015, Start Num: 38

Candidate Starts for Brownie5\_59:

(Start: 38 @53503 has 31 MA's), (41, 53470), (44, 53410), (57, 53368), (58, 53365), (59, 53335), (64, 53296), (65, 53293), (66, 53290), (81, 53215), (92, 53176), (93, 53170), (95, 53152), (105, 53119), (111, 53101), (125, 53056),

Gene: Buckeye\_62 Start: 55298, Stop: 54840, Start Num: 36

Candidate Starts for Buckeye\_62:

(Start: 36 @55298 has 299 MA's), (44, 55202), (45, 55193), (58, 55118), (65, 55046), (86, 54980), (88, 54974), (89, 54968), (94, 54941),

Gene: Burr\_61 Start: 54473, Stop: 54015, Start Num: 36

Candidate Starts for Burr\_61:

(Start: 36 @54473 has 299 MA's), (44, 54377), (45, 54368), (58, 54293), (65, 54221), (86, 54155), (88, 54149), (89, 54143), (94, 54116),

Gene: CRB2\_58 Start: 56218, Stop: 55649, Start Num: 32

Candidate Starts for CRB2\_58:

(16, 56434), (25, 56320), (Start: 32 @56218 has 1 MA's), (55, 56080), (61, 56026), (64, 56008), (65, 56005), (87, 55930), (109, 55828), (111, 55822), (122, 55783), (145, 55681),

Gene: Calamitous\_59 Start: 53353, Stop: 52862, Start Num: 38

Candidate Starts for Calamitous\_59:

(2, 54043), (4, 53917), (9, 53893), (27, 53455), (Start: 38 @53353 has 31 MA's), (41, 53320), (44, 53260), (57, 53218), (58, 53215), (59, 53185), (64, 53146), (65, 53143), (66, 53140), (81, 53065), (92, 53026), (93, 53020), (95, 53002), (105, 52969), (111, 52951), (125, 52906),

Gene: CamL\_61 Start: 54805, Stop: 54347, Start Num: 36

Candidate Starts for CamL\_61:

(Start: 36 @54805 has 299 MA's), (44, 54709), (45, 54700), (58, 54625), (65, 54553), (86, 54487), (88, 54481), (89, 54475), (94, 54448),

Gene: CampRoach\_63 Start: 54909, Stop: 54445, Start Num: 36

Candidate Starts for CampRoach\_63:

(Start: 36 @54909 has 299 MA's), (44, 54813), (45, 54804), (58, 54729), (65, 54657), (86, 54591), (88, 54585), (89, 54579), (94, 54552),

Gene: Cannibal\_61 Start: 54747, Stop: 54289, Start Num: 36

Candidate Starts for Cannibal\_61:

(Start: 36 @54747 has 299 MA's), (44, 54651), (45, 54642), (58, 54567), (65, 54495), (86, 54429), (88, 54423), (89, 54417), (94, 54390),

Gene: Carthage\_60 Start: 53984, Stop: 53526, Start Num: 36

Candidate Starts for Carthage\_60:

(Start: 36 @53984 has 299 MA's), (44, 53888), (45, 53879), (58, 53804), (65, 53732), (86, 53666), (88, 53660), (89, 53654), (94, 53627), (116, 53558),

Gene: Casbah\_62 Start: 55319, Stop: 54843, Start Num: 36

Candidate Starts for Casbah\_62:

(Start: 33 @55322 has 10 MA's), (Start: 36 @55319 has 299 MA's), (44, 55223), (58, 55157), (59, 55127), (70, 55055), (72, 55052), (73, 55043), (79, 55028), (92, 54971),

Gene: ChaChing\_62 Start: 55021, Stop: 54545, Start Num: 36

Candidate Starts for ChaChing\_62:

(Start: 19 @55156 has 2 MA's), (22, 55135), (Start: 33 @55024 has 10 MA's), (Start: 36 @55021 has 299 MA's), (44, 54925), (58, 54859), (59, 54829), (70, 54757), (72, 54754), (73, 54745), (79, 54730), (92, 54673),

Gene: Chaelin\_62 Start: 55035, Stop: 54577, Start Num: 36

Candidate Starts for Chaelin\_62:

(Start: 36 @55035 has 299 MA's), (44, 54939), (45, 54930), (58, 54855), (65, 54783), (86, 54717), (88, 54711), (89, 54705), (94, 54678),

Gene: Chah\_63 Start: 54450, Stop: 53992, Start Num: 36

Candidate Starts for Chah\_63:

(Start: 36 @54450 has 299 MA's), (44, 54354), (45, 54345), (58, 54270), (65, 54198), (86, 54132), (88, 54126), (89, 54120), (94, 54093),

Gene: Chandler\_62 Start: 55789, Stop: 55313, Start Num: 36

Candidate Starts for Chandler\_62:

(Start: 19 @55924 has 2 MA's), (22, 55903), (Start: 33 @55792 has 10 MA's), (Start: 36 @55789 has 299 MA's), (44, 55693), (58, 55627), (59, 55597), (70, 55525), (72, 55522), (73, 55513), (79, 55498), (92, 55441),

Gene: Charles1\_62 Start: 54759, Stop: 54301, Start Num: 36

Candidate Starts for Charles1\_62:

(Start: 36 @54759 has 299 MA's), (44, 54663), (45, 54654), (58, 54579), (65, 54507), (86, 54441), (88, 54435), (89, 54429), (94, 54402),

Gene: CharlieGBrown\_62 Start: 54598, Stop: 54140, Start Num: 36

Candidate Starts for CharlieGBrown\_62:

(Start: 36 @54598 has 299 MA's), (44, 54502), (45, 54493), (58, 54418), (65, 54346), (86, 54280), (88, 54274), (89, 54268), (94, 54241),

Gene: CheetO\_61 Start: 54721, Stop: 54263, Start Num: 36

Candidate Starts for CheetO\_61:

(Start: 36 @54721 has 299 MA's), (44, 54625), (45, 54616), (58, 54541), (65, 54469), (86, 54403), (88, 54397), (89, 54391), (94, 54364),

Gene: Cher\_61 Start: 55015, Stop: 54557, Start Num: 36

Candidate Starts for Cher\_61:

(Start: 36 @55015 has 299 MA's), (44, 54919), (45, 54910), (58, 54835), (65, 54763), (86, 54697), (88, 54691), (89, 54685), (94, 54658),

Gene: Childish\_61 Start: 55026, Stop: 54568, Start Num: 36

Candidate Starts for Childish\_61:

(Start: 36 @55026 has 299 MA's), (44, 54930), (45, 54921), (58, 54846), (65, 54774), (86, 54708), (88, 54702), (89, 54696), (94, 54669),

Gene: Chorkpop\_61 Start: 54502, Stop: 54044, Start Num: 36

Candidate Starts for Chorkpop\_61:

(Start: 36 @54502 has 299 MA's), (44, 54406), (45, 54397), (58, 54322), (65, 54250), (86, 54184), (88, 54178), (89, 54172), (94, 54145),

Gene: Chunky\_60 Start: 54051, Stop: 53593, Start Num: 36

Candidate Starts for Chunky\_60:



(Start: 36 @54051 has 299 MA's), (44, 53955), (45, 53946), (58, 53871), (65, 53799), (86, 53733), (88, 53727), (89, 53721), (94, 53694),

Gene: Chute\_63 Start: 55063, Stop: 54605, Start Num: 36

Candidate Starts for Chute\_63:

(Start: 36 @55063 has 299 MA's), (44, 54967), (45, 54958), (58, 54883), (65, 54811), (86, 54745), (88, 54739), (89, 54733), (94, 54706),

Gene: Cobra\_63 Start: 55047, Stop: 54583, Start Num: 36

Candidate Starts for Cobra\_63:

(Start: 36 @55047 has 299 MA's), (44, 54951), (45, 54942), (58, 54867), (65, 54795), (86, 54729), (88, 54723), (89, 54717), (94, 54690),

Gene: Coffee\_59 Start: 53465, Stop: 52974, Start Num: 38

Candidate Starts for Coffee\_59:

(27, 53567), (Start: 38 @53465 has 31 MA's), (41, 53432), (44, 53372), (57, 53330), (58, 53327), (59, 53297), (64, 53258), (65, 53255), (66, 53252), (81, 53177), (92, 53138), (93, 53132), (95, 53114), (105, 53081), (111, 53063), (125, 53018),

Gene: Colbert\_60 Start: 54061, Stop: 53603, Start Num: 36

Candidate Starts for Colbert\_60:

(Start: 36 @54061 has 299 MA's), (44, 53965), (45, 53956), (58, 53881), (65, 53809), (86, 53743), (88, 53737), (89, 53731), (94, 53704),

Gene: Coletti\_64 Start: 55563, Stop: 55105, Start Num: 36

Candidate Starts for Coletti\_64:

(Start: 36 @55563 has 299 MA's), (44, 55467), (45, 55458), (58, 55383), (65, 55311), (86, 55245), (88, 55239), (89, 55233), (94, 55206),

Gene: Compostia\_62 Start: 55408, Stop: 54932, Start Num: 36

Candidate Starts for Compostia\_62:

(10, 55801), (11, 55675), (12, 55657), (Start: 19 @55543 has 2 MA's), (22, 55522), (Start: 33 @55411 has 10 MA's), (Start: 36 @55408 has 299 MA's), (44, 55312), (58, 55246), (59, 55216), (70, 55144), (72, 55141), (73, 55132), (79, 55117), (92, 55060),

Gene: Cooper\_56 Start: 54445, Stop: 53840, Start Num: 28

Candidate Starts for Cooper\_56:

(Start: 28 @54445 has 3 MA's), (44, 54325), (45, 54316), (58, 54271), (59, 54241), (64, 54202), (65, 54199), (75, 54154), (97, 54058), (139, 53914),

Gene: Cornobble\_61 Start: 54495, Stop: 54037, Start Num: 36

Candidate Starts for Cornobble\_61:

(Start: 36 @54495 has 299 MA's), (44, 54399), (45, 54390), (58, 54315), (65, 54243), (86, 54177), (88, 54171), (89, 54165), (94, 54138),

Gene: Corofin\_62 Start: 55032, Stop: 54556, Start Num: 36

Candidate Starts for Corofin\_62:

(Start: 19 @55167 has 2 MA's), (22, 55146), (Start: 33 @55035 has 10 MA's), (Start: 36 @55032 has 299 MA's), (44, 54936), (58, 54870), (59, 54840), (70, 54768), (72, 54765), (73, 54756), (79, 54741), (92, 54684),

Gene: Cosmolli16\_62 Start: 55205, Stop: 54747, Start Num: 36

Candidate Starts for Cosmolli16\_62:

(Start: 36 @55205 has 299 MA's), (44, 55109), (45, 55100), (58, 55025), (65, 54953), (86, 54887), (88, 54881), (89, 54875), (94, 54848),

Gene: Craff\_64 Start: 55450, Stop: 54992, Start Num: 36

Candidate Starts for Craff\_64:

(Start: 36 @55450 has 299 MA's), (44, 55354), (45, 55345), (58, 55270), (65, 55198), (86, 55132), (88, 55126), (89, 55120), (94, 55093),

Gene: Crownjwl\_61 Start: 54524, Stop: 54066, Start Num: 36

Candidate Starts for Crownjwl\_61:

(Start: 36 @54524 has 299 MA's), (44, 54428), (45, 54419), (58, 54344), (65, 54272), (86, 54206), (88, 54200), (89, 54194), (94, 54167),

Gene: DaddyDaniels\_63 Start: 54983, Stop: 54525, Start Num: 36

Candidate Starts for DaddyDaniels\_63:

(Start: 36 @54983 has 299 MA's), (44, 54887), (45, 54878), (58, 54803), (65, 54731), (86, 54665), (88, 54659), (89, 54653), (94, 54626),

Gene: Daffy\_61 Start: 54488, Stop: 54030, Start Num: 36

Candidate Starts for Daffy\_61:

(Start: 36 @54488 has 299 MA's), (44, 54392), (45, 54383), (58, 54308), (65, 54236), (86, 54170), (88, 54164), (89, 54158), (94, 54131),

Gene: Daisy\_61 Start: 54565, Stop: 54089, Start Num: 36

Candidate Starts for Daisy\_61:

(Start: 19 @54700 has 2 MA's), (22, 54679), (Start: 33 @54568 has 10 MA's), (Start: 36 @54565 has 299 MA's), (44, 54469), (58, 54403), (59, 54373), (70, 54301), (72, 54298), (73, 54289), (79, 54274), (92, 54217),

Gene: Daka\_64 Start: 55004, Stop: 54546, Start Num: 36

Candidate Starts for Daka\_64:

(Start: 36 @55004 has 299 MA's), (44, 54908), (45, 54899), (58, 54824), (65, 54752), (86, 54686), (88, 54680), (89, 54674), (94, 54647),

Gene: Dati\_61 Start: 55019, Stop: 54561, Start Num: 36

Candidate Starts for Dati\_61:

(Start: 36 @55019 has 299 MA's), (44, 54923), (45, 54914), (58, 54839), (65, 54767), (86, 54701), (88, 54695), (89, 54689), (94, 54662),

Gene: Deenasa\_62 Start: 55870, Stop: 55394, Start Num: 36

Candidate Starts for Deenasa\_62:

(18, 56029), (Start: 19 @56005 has 2 MA's), (22, 55984), (Start: 33 @55873 has 10 MA's), (Start: 36 @55870 has 299 MA's), (44, 55774), (58, 55708), (59, 55678), (70, 55606), (72, 55603), (73, 55594), (79, 55579), (92, 55522),

Gene: DelRivs\_60 Start: 54472, Stop: 54008, Start Num: 36

Candidate Starts for DelRivs\_60:

(Start: 36 @54472 has 299 MA's), (44, 54376), (45, 54367), (58, 54292), (65, 54220), (86, 54154), (88, 54148), (89, 54142), (94, 54115),

Gene: Derpp\_61 Start: 54586, Stop: 54128, Start Num: 36

Candidate Starts for Derpp\_61:

(Start: 36 @54586 has 299 MA's), (44, 54490), (45, 54481), (58, 54406), (65, 54334), (86, 54268), (88, 54262), (89, 54256), (94, 54229),

Gene: Devonte\_61 Start: 54644, Stop: 54168, Start Num: 36

Candidate Starts for Devonte\_61:

(Start: 19 @54779 has 2 MA's), (22, 54758), (Start: 33 @54647 has 10 MA's), (Start: 36 @54644 has 299 MA's), (44, 54548), (58, 54482), (59, 54452), (70, 54380), (72, 54377), (73, 54368), (79, 54353), (92, 54296),

Gene: Dice\_60 Start: 54471, Stop: 54013, Start Num: 36

Candidate Starts for Dice\_60:

(Start: 36 @54471 has 299 MA's), (44, 54375), (45, 54366), (58, 54291), (65, 54219), (86, 54153), (88, 54147), (89, 54141), (94, 54114),

Gene: DigitDog\_59 Start: 55051, Stop: 54422, Start Num: 31

Candidate Starts for DigitDog\_59:

(Start: 31 @55051 has 10 MA's), (41, 55009), (57, 54862), (59, 54829), (60, 54823), (61, 54808), (64, 54790), (68, 54772), (78, 54733), (80, 54724), (84, 54715), (109, 54613), (114, 54601),

Gene: Dingo\_60 Start: 54030, Stop: 53572, Start Num: 36

Candidate Starts for Dingo\_60:

(Start: 36 @54030 has 299 MA's), (44, 53934), (45, 53925), (58, 53850), (65, 53778), (86, 53712), (88, 53706), (89, 53700), (94, 53673),

Gene: Dione\_59 Start: 54202, Stop: 53744, Start Num: 36

Candidate Starts for Dione\_59:

(Start: 36 @54202 has 299 MA's), (44, 54106), (45, 54097), (58, 54022), (65, 53950), (86, 53884), (88, 53878), (89, 53872), (94, 53845),

Gene: DirtJuice\_62 Start: 54792, Stop: 54334, Start Num: 36

Candidate Starts for DirtJuice\_62:

(Start: 36 @54792 has 299 MA's), (44, 54696), (45, 54687), (58, 54612), (65, 54540), (86, 54474), (88, 54468), (89, 54462), (94, 54435),

Gene: Doddsville\_62 Start: 54738, Stop: 54280, Start Num: 36

Candidate Starts for Doddsville\_62:

(Start: 36 @54738 has 299 MA's), (44, 54642), (45, 54633), (58, 54558), (65, 54486), (86, 54420), (88, 54414), (89, 54408), (94, 54381),

Gene: DoesntMatter\_59 Start: 54495, Stop: 54037, Start Num: 36

Candidate Starts for DoesntMatter\_59:

(Start: 36 @54495 has 299 MA's), (44, 54399), (45, 54390), (58, 54315), (65, 54243), (86, 54177), (88, 54171), (89, 54165), (94, 54138),

Gene: DonSanchon\_59 Start: 54185, Stop: 53727, Start Num: 36

Candidate Starts for DonSanchon\_59:

(Start: 36 @54185 has 299 MA's), (44, 54089), (45, 54080), (58, 54005), (65, 53933), (86, 53867), (88, 53861), (89, 53855), (94, 53828),

Gene: Donny\_60 Start: 55154, Stop: 54513, Start Num: 31

Candidate Starts for Donny\_60:

(21, 55280), (Start: 31 @55154 has 10 MA's), (41, 55112), (57, 54965), (59, 54932), (61, 54911), (64, 54893), (68, 54875), (109, 54728), (114, 54716), (115, 54707), (133, 54644),

Gene: DuchessDung\_63 Start: 54255, Stop: 53797, Start Num: 36

Candidate Starts for DuchessDung\_63:

(Start: 36 @54255 has 299 MA's), (44, 54159), (45, 54150), (58, 54075), (65, 54003), (86, 53937), (88, 53931), (89, 53925), (94, 53898),

Gene: Duggie\_62 Start: 54745, Stop: 54281, Start Num: 36

Candidate Starts for Duggie\_62:

(Start: 36 @54745 has 299 MA's), (44, 54649), (45, 54640), (58, 54565), (65, 54493), (86, 54427), (88, 54421), (89, 54415), (94, 54388),

Gene: Durga\_64 Start: 55235, Stop: 54777, Start Num: 36

Candidate Starts for Durga\_64:

(Start: 36 @55235 has 299 MA's), (44, 55139), (45, 55130), (58, 55055), (65, 54983), (86, 54917), (88, 54911), (89, 54905), (94, 54878),

Gene: Eaglehorse\_59 Start: 53403, Stop: 52912, Start Num: 38

Candidate Starts for Eaglehorse\_59:

(Start: 38 @53403 has 31 MA's), (41, 53370), (44, 53310), (57, 53268), (58, 53265), (59, 53235), (64, 53196), (65, 53193), (66, 53190), (81, 53115), (92, 53076), (93, 53070), (95, 53052), (105, 53019), (111, 53001), (125, 52956),

Gene: EastView9101\_58 Start: 54963, Stop: 54334, Start Num: 31

Candidate Starts for EastView9101\_58:

(21, 55089), (Start: 31 @54963 has 10 MA's), (41, 54921), (57, 54774), (59, 54741), (61, 54720), (64, 54702), (68, 54684), (109, 54537), (114, 54525), (115, 54516), (133, 54453),

Gene: Emiris\_64 Start: 55202, Stop: 54744, Start Num: 36

Candidate Starts for Emiris\_64:

(Start: 36 @55202 has 299 MA's), (44, 55106), (45, 55097), (58, 55022), (65, 54950), (86, 54884), (88, 54878), (89, 54872), (94, 54845),

Gene: EmpTee\_61 Start: 54711, Stop: 54253, Start Num: 36

Candidate Starts for EmpTee\_61:

(Start: 36 @54711 has 299 MA's), (44, 54615), (45, 54606), (58, 54531), (65, 54459), (86, 54393), (88, 54387), (89, 54381), (94, 54354),

Gene: Eremos\_61 Start: 54701, Stop: 54243, Start Num: 36

Candidate Starts for Eremos\_61:

(Start: 36 @54701 has 299 MA's), (44, 54605), (45, 54596), (58, 54521), (65, 54449), (86, 54383), (88, 54377), (89, 54371), (94, 54344),

Gene: Etaye\_63 Start: 55532, Stop: 55074, Start Num: 36

Candidate Starts for Etaye\_63:

(Start: 36 @55532 has 299 MA's), (44, 55436), (45, 55427), (58, 55352), (65, 55280), (86, 55214), (88, 55208), (89, 55202), (94, 55175),

Gene: Eugenia\_61 Start: 54854, Stop: 54396, Start Num: 36

Candidate Starts for Eugenia\_61:

(Start: 36 @54854 has 299 MA's), (44, 54758), (45, 54749), (58, 54674), (65, 54602), (86, 54536), (88, 54530), (89, 54524), (94, 54497),

Gene: Fang\_63 Start: 54747, Stop: 54289, Start Num: 36

Candidate Starts for Fang\_63:

(Start: 36 @54747 has 299 MA's), (44, 54651), (45, 54642), (58, 54567), (65, 54495), (86, 54429), (88, 54423), (89, 54417), (94, 54390),

Gene: Faze9\_58 Start: 53488, Stop: 52997, Start Num: 38

Candidate Starts for Faze9\_58:

(27, 53590), (Start: 38 @53488 has 31 MA's), (41, 53455), (44, 53395), (57, 53353), (58, 53350), (59, 53320), (64, 53281), (65, 53278), (66, 53275), (81, 53200), (92, 53161), (93, 53155), (95, 53137), (105, 53104), (111, 53086), (125, 53041),

Gene: FluffyNinja\_63 Start: 54767, Stop: 54309, Start Num: 36

Candidate Starts for FluffyNinja\_63:

(Start: 36 @54767 has 299 MA's), (44, 54671), (45, 54662), (58, 54587), (65, 54515), (86, 54449), (88, 54443), (89, 54437), (94, 54410),

Gene: Fozzie\_62 Start: 54992, Stop: 54534, Start Num: 36

Candidate Starts for Fozzie\_62:

(Start: 36 @54992 has 299 MA's), (44, 54896), (45, 54887), (58, 54812), (65, 54740), (86, 54674), (88, 54668), (89, 54662), (94, 54635),

Gene: Frankicide\_60 Start: 54532, Stop: 54074, Start Num: 36

Candidate Starts for Frankicide\_60:

(Start: 36 @54532 has 299 MA's), (44, 54436), (45, 54427), (58, 54352), (65, 54280), (86, 54214), (88, 54208), (89, 54202), (94, 54175),

Gene: FrenchFry\_59 Start: 53464, Stop: 52973, Start Num: 38

Candidate Starts for FrenchFry\_59:

(1, 54244), (2, 54154), (4, 54028), (9, 54004), (27, 53566), (Start: 38 @53464 has 31 MA's), (41, 53431), (44, 53371), (57, 53329), (58, 53326), (59, 53296), (64, 53257), (65, 53254), (66, 53251), (81, 53176), (92, 53137), (93, 53131), (95, 53113), (105, 53080), (111, 53062), (125, 53017),

Gene: Freya\_59 Start: 54193, Stop: 53735, Start Num: 36

Candidate Starts for Freya\_59:

(Start: 36 @54193 has 299 MA's), (44, 54097), (45, 54088), (58, 54013), (65, 53941), (86, 53875), (88, 53869), (89, 53863), (94, 53836),

Gene: FriarPreacher\_61 Start: 54585, Stop: 54121, Start Num: 36

Candidate Starts for FriarPreacher\_61:

(Start: 36 @54585 has 299 MA's), (44, 54489), (45, 54480), (58, 54405), (65, 54333), (86, 54267), (88, 54261), (89, 54255), (94, 54228),

Gene: Fringe\_65 Start: 55369, Stop: 54911, Start Num: 36

Candidate Starts for Fringe\_65:

(Start: 36 @55369 has 299 MA's), (44, 55273), (45, 55264), (58, 55189), (65, 55117), (86, 55051), (88, 55045), (89, 55039), (94, 55012),

Gene: FugateOSU\_62 Start: 55538, Stop: 55080, Start Num: 36

Candidate Starts for FugateOSU\_62:

(Start: 36 @55538 has 299 MA's), (44, 55442), (45, 55433), (58, 55358), (65, 55286), (86, 55220), (88, 55214), (89, 55208), (94, 55181),

Gene: Funsized\_61 Start: 57221, Stop: 56568, Start Num: 30

Candidate Starts for Funsized\_61:

(6, 57734), (13, 57476), (14, 57461), (23, 57338), (Start: 30 @57221 has 3 MA's), (Start: 33 @57212 has 10 MA's), (41, 57167), (44, 57107), (46, 57086), (56, 57047), (58, 57041), (64, 56972), (65, 56969), (70, 56939), (74, 56924), (94, 56849), (96, 56831), (117, 56771), (119, 56765), (141, 56660), (151, 56594), (152, 56579),

Gene: Gadget\_63 Start: 55340, Stop: 54861, Start Num: 36

Candidate Starts for Gadget\_63:

(Start: 33 @55343 has 10 MA's), (Start: 36 @55340 has 299 MA's), (44, 55244), (58, 55178), (59, 55148), (70, 55076), (72, 55073), (73, 55064), (92, 54989),

Gene: Gareth\_61 Start: 54991, Stop: 54533, Start Num: 36

Candidate Starts for Gareth\_61:

(Start: 36 @54991 has 299 MA's), (44, 54895), (45, 54886), (58, 54811), (65, 54739), (86, 54673), (88, 54667), (89, 54661), (94, 54634),

Gene: GeneCoco\_62 Start: 55034, Stop: 54576, Start Num: 36

Candidate Starts for GeneCoco\_62:

(Start: 36 @55034 has 299 MA's), (44, 54938), (45, 54929), (58, 54854), (65, 54782), (86, 54716), (88, 54710), (89, 54704), (94, 54677),

Gene: Gervas\_63 Start: 55426, Stop: 54950, Start Num: 36

Candidate Starts for Gervas\_63:

(Start: 19 @55561 has 2 MA's), (22, 55540), (Start: 33 @55429 has 10 MA's), (Start: 36 @55426 has 299 MA's), (44, 55330), (58, 55264), (59, 55234), (70, 55162), (72, 55159), (73, 55150), (79, 55135), (83, 55117), (92, 55078),

Gene: Giraffe\_62 Start: 54986, Stop: 54528, Start Num: 36

Candidate Starts for Giraffe\_62:

(Start: 36 @54986 has 299 MA's), (44, 54890), (45, 54881), (58, 54806), (65, 54734), (86, 54668), (88, 54662), (89, 54656), (94, 54629),

Gene: Glass\_59 Start: 53466, Stop: 52975, Start Num: 38

Candidate Starts for Glass\_59:

(1, 54246), (2, 54156), (4, 54030), (9, 54006), (27, 53568), (Start: 38 @53466 has 31 MA's), (41, 53433), (44, 53373), (57, 53331), (58, 53328), (59, 53298), (64, 53259), (65, 53256), (66, 53253), (81, 53178), (92, 53139), (93, 53133), (95, 53115), (105, 53082), (111, 53064), (125, 53019),

Gene: GlenHope\_63 Start: 55000, Stop: 54524, Start Num: 36

Candidate Starts for GlenHope\_63:

(Start: 19 @55135 has 2 MA's), (22, 55114), (Start: 33 @55003 has 10 MA's), (Start: 36 @55000 has 299 MA's), (44, 54904), (58, 54838), (59, 54808), (70, 54736), (72, 54733), (73, 54724), (79, 54709), (92, 54652),

Gene: Godines\_60 Start: 53749, Stop: 53258, Start Num: 38

Candidate Starts for Godines\_60:

(17, 53956), (Start: 38 @53749 has 31 MA's), (41, 53716), (44, 53656), (57, 53614), (58, 53611), (59, 53581), (64, 53542), (65, 53539), (66, 53536), (68, 53524), (81, 53461), (92, 53422), (93, 53416), (95, 53398), (105, 53365), (125, 53302),

Gene: Gophee\_63 Start: 54977, Stop: 54519, Start Num: 36

Candidate Starts for Gophee\_63:

(Start: 36 @54977 has 299 MA's), (44, 54881), (45, 54872), (58, 54797), (65, 54725), (86, 54659), (88, 54653), (89, 54647), (94, 54620),

Gene: Grand2040\_61 Start: 54980, Stop: 54522, Start Num: 36

Candidate Starts for Grand2040\_61:

(Start: 36 @54980 has 299 MA's), (44, 54884), (45, 54875), (58, 54800), (65, 54728), (86, 54662), (88, 54656), (89, 54650), (94, 54623),

Gene: Gwilliam\_63 Start: 55385, Stop: 54927, Start Num: 36

Candidate Starts for Gwilliam\_63:

(Start: 36 @55385 has 299 MA's), (44, 55289), (45, 55280), (58, 55205), (65, 55133), (86, 55067), (88, 55061), (89, 55055), (94, 55028),

Gene: Gyarad\_0060 Start: 54067, Stop: 53609, Start Num: 36

Candidate Starts for Gyarad\_0060:

(Start: 36 @54067 has 299 MA's), (44, 53971), (45, 53962), (58, 53887), (65, 53815), (86, 53749), (88, 53743), (89, 53737), (94, 53710),

Gene: HSavage\_60 Start: 54511, Stop: 54053, Start Num: 36

Candidate Starts for HSavage\_60:

(Start: 36 @54511 has 299 MA's), (44, 54415), (45, 54406), (58, 54331), (65, 54259), (86, 54193), (88, 54187), (89, 54181), (94, 54154),

Gene: Haimas\_60 Start: 54428, Stop: 53970, Start Num: 36

Candidate Starts for Haimas\_60:

(Start: 36 @54428 has 299 MA's), (44, 54332), (45, 54323), (58, 54248), (65, 54176), (86, 54110), (88, 54104), (89, 54098), (94, 54071),

Gene: Haleema\_60 Start: 54532, Stop: 54068, Start Num: 36

Candidate Starts for Haleema\_60:

(Start: 36 @54532 has 299 MA's), (44, 54436), (45, 54427), (58, 54352), (65, 54280), (86, 54214), (88, 54208), (89, 54202), (94, 54175),

Gene: Halfpint\_61 Start: 54743, Stop: 54264, Start Num: 36

Candidate Starts for Halfpint\_61:

(Start: 33 @54746 has 10 MA's), (Start: 36 @54743 has 299 MA's), (44, 54647), (58, 54581), (59, 54551), (70, 54479), (72, 54476), (73, 54467), (79, 54452), (92, 54395),

Gene: Hamish\_60 Start: 54422, Stop: 53964, Start Num: 36

Candidate Starts for Hamish\_60:

(Start: 36 @54422 has 299 MA's), (44, 54326), (45, 54317), (58, 54242), (65, 54170), (86, 54104), (88, 54098), (89, 54092), (94, 54065),

Gene: Hartsy\_62 Start: 54860, Stop: 54402, Start Num: 36

Candidate Starts for Hartsy\_62:

(Start: 36 @54860 has 299 MA's), (44, 54764), (45, 54755), (58, 54680), (65, 54608), (86, 54542), (88, 54536), (89, 54530), (94, 54503),

Gene: Harvey\_60 Start: 54515, Stop: 54057, Start Num: 36

Candidate Starts for Harvey\_60:

(Start: 36 @54515 has 299 MA's), (44, 54419), (45, 54410), (58, 54335), (65, 54263), (86, 54197), (88, 54191), (89, 54185), (94, 54158),

Gene: HarveySr\_61 Start: 54590, Stop: 54114, Start Num: 36

Candidate Starts for HarveySr\_61:

(Start: 19 @54725 has 2 MA's), (22, 54704), (Start: 33 @54593 has 10 MA's), (Start: 36 @54590 has 299 MA's), (44, 54494), (58, 54428), (59, 54398), (70, 54326), (72, 54323), (73, 54314), (79, 54299), (92, 54242),

Gene: Hashim76\_64 Start: 55261, Stop: 54758, Start Num: 36

Candidate Starts for Hashim76\_64:

(Start: 36 @55261 has 299 MA's), (59, 55063), (64, 55024), (73, 54982), (96, 54889),

Gene: Heathcliff\_62 Start: 54970, Stop: 54491, Start Num: 33

Candidate Starts for Heathcliff\_62:

(Start: 19 @55102 has 2 MA's), (22, 55081), (Start: 33 @54970 has 10 MA's), (Start: 36 @54967 has 299 MA's), (44, 54871), (58, 54805), (59, 54775), (70, 54703), (72, 54700), (73, 54691), (79, 54676), (92, 54619),

Gene: Hedgerow\_59 Start: 53478, Stop: 52990, Start Num: 38

Candidate Starts for Hedgerow\_59:

(Start: 38 @53478 has 31 MA's), (41, 53445), (44, 53385), (57, 53343), (58, 53340), (59, 53310), (64, 53271), (65, 53268), (66, 53265), (81, 53190), (92, 53151), (93, 53145), (95, 53127), (105, 53094), (111, 53076), (125, 53031),

Gene: Held\_61 Start: 54489, Stop: 54031, Start Num: 36

Candidate Starts for Held\_61:

(Start: 36 @54489 has 299 MA's), (44, 54393), (45, 54384), (58, 54309), (65, 54237), (86, 54171), (88, 54165), (89, 54159), (94, 54132),

Gene: HenryJackson\_61 Start: 55015, Stop: 54557, Start Num: 36

Candidate Starts for HenryJackson\_61:

(Start: 36 @55015 has 299 MA's), (44, 54919), (45, 54910), (58, 54835), (65, 54763), (86, 54697), (88, 54691), (89, 54685), (94, 54658),

Gene: Hertubise\_61 Start: 54781, Stop: 54323, Start Num: 36

Candidate Starts for Hertubise\_61:

(Start: 36 @54781 has 299 MA's), (44, 54685), (45, 54676), (58, 54601), (65, 54529), (86, 54463), (88, 54457), (89, 54451), (94, 54424),

Gene: Hetaeria\_61 Start: 54720, Stop: 54262, Start Num: 36

Candidate Starts for Hetaeria\_61:

(Start: 36 @54720 has 299 MA's), (44, 54624), (45, 54615), (58, 54540), (65, 54468), (86, 54402), (88, 54396), (89, 54390), (94, 54363),

Gene: HighStump\_63 Start: 54992, Stop: 54534, Start Num: 36

Candidate Starts for HighStump\_63:

(Start: 36 @54992 has 299 MA's), (44, 54896), (45, 54887), (58, 54812), (65, 54740), (86, 54674), (88, 54668), (89, 54662), (94, 54635),

Gene: Hocus\_61 Start: 54476, Stop: 54018, Start Num: 36

Candidate Starts for Hocus\_61:

(Start: 36 @54476 has 299 MA's), (44, 54380), (45, 54371), (58, 54296), (65, 54224), (86, 54158), (88, 54152), (89, 54146), (94, 54119),

Gene: Holeinone\_59 Start: 53320, Stop: 52829, Start Num: 38

Candidate Starts for Holeinone\_59:



(1, 54100), (2, 54010), (4, 53884), (9, 53860), (27, 53422), (Start: 38 @53320 has 31 MA's), (41, 53287), (44, 53227), (57, 53185), (58, 53182), (59, 53152), (64, 53113), (65, 53110), (66, 53107), (81, 53032), (92, 52993), (93, 52987), (95, 52969), (105, 52936), (111, 52918), (125, 52873),

Gene: Horchata\_60 Start: 54511, Stop: 54053, Start Num: 36

Candidate Starts for Horchata\_60:

(Start: 36 @54511 has 299 MA's), (44, 54415), (45, 54406), (58, 54331), (65, 54259), (86, 54193), (88, 54187), (89, 54181), (94, 54154),

Gene: Hosp\_052 Start: 51513, Stop: 51040, Start Num: 36

Candidate Starts for Hosp\_052:

(Start: 36 @51513 has 299 MA's), (44, 51420), (48, 51390), (51, 51378), (63, 51291), (73, 51246), (82, 51231), (99, 51159), (103, 51147), (113, 51123), (120, 51099),

Gene: ImtiyazSitla\_63 Start: 54718, Stop: 54254, Start Num: 36

Candidate Starts for ImtiyazSitla\_63:

(Start: 36 @54718 has 299 MA's), (44, 54622), (45, 54613), (58, 54538), (65, 54466), (86, 54400), (88, 54394), (89, 54388), (94, 54361),

Gene: Imvubu\_53 Start: 52588, Stop: 51845, Start Num: 34

Candidate Starts for Imvubu\_53:

(5, 53128), (6, 53122), (14, 52852), (20, 52741), (Start: 34 @52588 has 1 MA's), (39, 52573), (40, 52567), (41, 52543), (44, 52483), (46, 52462), (56, 52432), (58, 52426), (59, 52396), (68, 52339), (71, 52321), (74, 52309), (78, 52297), (94, 52234), (103, 52198), (107, 52183), (141, 52045), (150, 51982), (153, 51886), (154, 51868),

Gene: Inchworm\_63 Start: 54869, Stop: 54405, Start Num: 36

Candidate Starts for Inchworm\_63:

(Start: 36 @54869 has 299 MA's), (44, 54773), (45, 54764), (58, 54689), (65, 54617), (86, 54551), (88, 54545), (89, 54539), (94, 54512),

Gene: Indlovu\_57 Start: 55077, Stop: 54580, Start Num: 29

Candidate Starts for Indlovu\_57:

(Start: 29 @55077 has 3 MA's), (37, 55059), (45, 54960), (54, 54930), (57, 54924), (64, 54855), (77, 54798), (98, 54702), (104, 54690), (109, 54672), (112, 54663), (124, 54624), (129, 54609), (133, 54594),

Gene: Inverness\_60 Start: 54519, Stop: 54061, Start Num: 36

Candidate Starts for Inverness\_60:

(Start: 36 @54519 has 299 MA's), (44, 54423), (45, 54414), (58, 54339), (65, 54267), (86, 54201), (88, 54195), (89, 54189), (94, 54162),

Gene: Iridoclysis\_62 Start: 54803, Stop: 54345, Start Num: 36

Candidate Starts for Iridoclysis\_62:

(Start: 36 @54803 has 299 MA's), (44, 54707), (45, 54698), (58, 54623), (65, 54551), (86, 54485), (88, 54479), (89, 54473), (94, 54446),

Gene: IsaacEli\_63 Start: 55002, Stop: 54544, Start Num: 36

Candidate Starts for IsaacEli\_63:

(Start: 36 @55002 has 299 MA's), (44, 54906), (45, 54897), (58, 54822), (65, 54750), (86, 54684), (88, 54678), (89, 54672), (94, 54645),

Gene: JAMaL\_55 Start: 55393, Stop: 54788, Start Num: 28

Candidate Starts for JAMaL\_55:

(Start: 28 @55393 has 3 MA's), (44, 55273), (45, 55264), (58, 55219), (59, 55189), (64, 55150), (65, 55147), (77, 55096), (97, 55006), (139, 54862), (148, 54799),

Gene: JDog\_60 Start: 55024, Stop: 54560, Start Num: 36

Candidate Starts for JDog\_60:

(Start: 36 @55024 has 299 MA's), (44, 54928), (45, 54919), (58, 54844), (65, 54772), (86, 54706), (88, 54700), (89, 54694), (94, 54667),

Gene: JacAttac\_63 Start: 54465, Stop: 54007, Start Num: 36

Candidate Starts for JacAttac\_63:

(Start: 36 @54465 has 299 MA's), (44, 54369), (45, 54360), (58, 54285), (65, 54213), (86, 54147), (88, 54141), (89, 54135), (94, 54108),

Gene: Jackstina\_58 Start: 54892, Stop: 54416, Start Num: 36

Candidate Starts for Jackstina\_58:

(Start: 19 @55027 has 2 MA's), (22, 55006), (Start: 33 @54895 has 10 MA's), (Start: 36 @54892 has 299 MA's), (44, 54796), (59, 54700), (70, 54628), (72, 54625), (73, 54616), (79, 54601), (92, 54544),

Gene: JakeO\_62 Start: 54747, Stop: 54283, Start Num: 36

Candidate Starts for JakeO\_62:

(Start: 36 @54747 has 299 MA's), (44, 54651), (45, 54642), (58, 54567), (65, 54495), (86, 54429), (88, 54423), (89, 54417), (94, 54390),

Gene: JangoPhett\_61 Start: 54806, Stop: 54348, Start Num: 36

Candidate Starts for JangoPhett\_61:

(Start: 36 @54806 has 299 MA's), (44, 54710), (45, 54701), (58, 54626), (65, 54554), (86, 54488), (88, 54482), (89, 54476), (94, 54449),

Gene: Jillium\_61 Start: 55010, Stop: 54552, Start Num: 36

Candidate Starts for Jillium\_61:

(Start: 36 @55010 has 299 MA's), (44, 54914), (45, 54905), (58, 54830), (65, 54758), (86, 54692), (88, 54686), (89, 54680), (94, 54653),

Gene: Jiminy\_62 Start: 54583, Stop: 54119, Start Num: 36

Candidate Starts for Jiminy\_62:

(Start: 36 @54583 has 299 MA's), (44, 54487), (45, 54478), (58, 54403), (65, 54331), (86, 54265), (88, 54259), (89, 54253), (94, 54226),

Gene: Jiraiya\_65 Start: 54781, Stop: 54317, Start Num: 36

Candidate Starts for Jiraiya\_65:

(Start: 36 @54781 has 299 MA's), (44, 54685), (45, 54676), (58, 54601), (65, 54529), (86, 54463), (88, 54457), (89, 54451), (94, 54424),

Gene: Jolie1\_054 Start: 53413, Stop: 52940, Start Num: 36

Candidate Starts for Jolie1\_054:

(Start: 36 @53413 has 299 MA's), (44, 53320), (48, 53290), (51, 53278), (63, 53191), (82, 53131), (99, 53059), (103, 53047),

Gene: KLucky39\_60 Start: 54066, Stop: 53608, Start Num: 36

Candidate Starts for KLucky39\_60:

(Start: 36 @54066 has 299 MA's), (44, 53970), (45, 53961), (58, 53886), (65, 53814), (86, 53748), (88, 53742), (89, 53736), (94, 53709),

Gene: Kahve\_61 Start: 55012, Stop: 54554, Start Num: 36

Candidate Starts for Kahve\_61:

(Start: 36 @55012 has 299 MA's), (44, 54916), (45, 54907), (58, 54832), (65, 54760), (86, 54694), (88, 54688), (89, 54682), (94, 54655),

Gene: Kailash\_62 Start: 55098, Stop: 54634, Start Num: 36

Candidate Starts for Kailash\_62:

(Start: 36 @55098 has 299 MA's), (44, 55002), (45, 54993), (58, 54918), (65, 54846), (86, 54780), (88, 54774), (89, 54768), (94, 54741),

Gene: Kaleb\_59 Start: 53502, Stop: 53011, Start Num: 38

Candidate Starts for Kaleb\_59:

(Start: 38 @53502 has 31 MA's), (41, 53469), (44, 53409), (57, 53367), (58, 53364), (59, 53334), (64, 53295), (65, 53292), (66, 53289), (81, 53214), (92, 53175), (93, 53169), (95, 53151), (105, 53118), (111, 53100), (125, 53055),

Gene: Kamiyu\_62 Start: 54969, Stop: 54493, Start Num: 36

Candidate Starts for Kamiyu\_62:

(Start: 19 @55104 has 2 MA's), (22, 55083), (Start: 33 @54972 has 10 MA's), (Start: 36 @54969 has 299 MA's), (44, 54873), (58, 54807), (59, 54777), (70, 54705), (72, 54702), (73, 54693), (79, 54678), (92, 54621),

Gene: KarasumaRum\_59 Start: 55230, Stop: 54595, Start Num: 31

Candidate Starts for KarasumaRum\_59:

(Start: 31 @55230 has 10 MA's), (41, 55188), (57, 55041), (59, 55008), (60, 55002), (61, 54987), (64, 54969), (68, 54951), (78, 54912), (80, 54903), (84, 54894), (94, 54849), (100, 54819), (101, 54813),

Gene: Katniss\_62 Start: 54450, Stop: 53992, Start Num: 36

Candidate Starts for Katniss\_62:

(Start: 36 @54450 has 299 MA's), (44, 54354), (45, 54345), (58, 54270), (65, 54198), (86, 54132), (88, 54126), (89, 54120), (94, 54093),

Gene: KayaCho\_53 Start: 53359, Stop: 52745, Start Num: 36

Candidate Starts for KayaCho\_53:

(Start: 36 @53359 has 299 MA's), (44, 53266), (48, 53236), (51, 53224), (53, 53215), (63, 53137), (95, 53023), (113, 52972), (118, 52954), (140, 52867), (141, 52861), (146, 52828),

Gene: Keitherie\_63 Start: 55073, Stop: 54615, Start Num: 36

Candidate Starts for Keitherie\_63:

(Start: 36 @55073 has 299 MA's), (44, 54977), (45, 54968), (58, 54893), (65, 54821), (86, 54755), (88, 54749), (89, 54743), (94, 54716),

Gene: Kheth\_59 Start: 53385, Stop: 52894, Start Num: 38

Candidate Starts for Kheth\_59:

(2, 54075), (4, 53949), (9, 53925), (27, 53487), (Start: 38 @53385 has 31 MA's), (41, 53352), (44, 53292), (57, 53250), (58, 53247), (59, 53217), (64, 53178), (65, 53175), (66, 53172), (81, 53097), (92, 53058), (93, 53052), (95, 53034), (105, 53001), (106, 52998), (111, 52983), (125, 52938),

Gene: Kikipoo\_63 Start: 55002, Stop: 54544, Start Num: 36

Candidate Starts for Kikipoo\_63:

(Start: 36 @55002 has 299 MA's), (44, 54906), (45, 54897), (58, 54822), (65, 54750), (86, 54684), (88, 54678), (89, 54672), (94, 54645),

Gene: Kimbrough\_62 Start: 55053, Stop: 54595, Start Num: 36

Candidate Starts for Kimbrough\_62:

(Start: 36 @55053 has 299 MA's), (44, 54957), (45, 54948), (58, 54873), (65, 54801), (86, 54735), (88, 54729), (89, 54723), (94, 54696),

Gene: KingTut\_54 Start: 51217, Stop: 50759, Start Num: 36

Candidate Starts for KingTut\_54:

(Start: 36 @51217 has 299 MA's), (44, 51121), (45, 51112), (58, 51037), (65, 50965), (86, 50899), (88, 50893), (89, 50887), (94, 50860),

Gene: KingVeVeVe\_60 Start: 54020, Stop: 53562, Start Num: 36

Candidate Starts for KingVeVeVe\_60:

(Start: 36 @54020 has 299 MA's), (44, 53924), (45, 53915), (58, 53840), (65, 53768), (86, 53702), (88, 53696), (89, 53690), (94, 53663),

Gene: KlimbOn\_61 Start: 54511, Stop: 54053, Start Num: 36

Candidate Starts for KlimbOn\_61:

(Start: 36 @54511 has 299 MA's), (44, 54415), (45, 54406), (58, 54331), (65, 54259), (86, 54193), (88, 54187), (89, 54181), (94, 54154),

Gene: Kloppinator\_62 Start: 54662, Stop: 54204, Start Num: 36

Candidate Starts for Kloppinator\_62:

(Start: 36 @54662 has 299 MA's), (44, 54566), (45, 54557), (58, 54482), (65, 54410), (86, 54344), (88, 54338), (89, 54332), (94, 54305),

Gene: Knocker\_60 Start: 56622, Stop: 55990, Start Num: 30

Candidate Starts for Knocker\_60:

(26, 56706), (Start: 30 @56622 has 3 MA's), (39, 56598), (46, 56502), (58, 56475), (74, 56358), (91, 56301), (94, 56283), (107, 56232), (110, 56223), (127, 56163), (131, 56148), (148, 56040),

Gene: Kronus\_62 Start: 56054, Stop: 55578, Start Num: 36

Candidate Starts for Kronus\_62:

(Start: 19 @56192 has 2 MA's), (22, 56171), (Start: 33 @56057 has 10 MA's), (Start: 36 @56054 has 299 MA's), (44, 55958), (58, 55892), (59, 55862), (70, 55790), (72, 55787), (73, 55778), (79, 55763), (92, 55706),

Gene: Kwadwo\_60 Start: 54463, Stop: 54005, Start Num: 36

Candidate Starts for Kwadwo\_60:

(Start: 36 @54463 has 299 MA's), (44, 54367), (45, 54358), (58, 54283), (65, 54211), (86, 54145), (88, 54139), (89, 54133), (94, 54106),

Gene: Kwksand96\_62 Start: 54598, Stop: 54134, Start Num: 36

Candidate Starts for Kwksand96\_62:

(Start: 36 @54598 has 299 MA's), (44, 54502), (45, 54493), (58, 54418), (65, 54346), (86, 54280), (88, 54274), (89, 54268), (94, 54241),

Gene: Labeouficaum\_62 Start: 54586, Stop: 54128, Start Num: 36

Candidate Starts for Labeouficaum\_62:

(Start: 36 @54586 has 299 MA's), (44, 54490), (45, 54481), (58, 54406), (65, 54334), (86, 54268), (88, 54262), (89, 54256), (94, 54229),

Gene: Lars\_59 Start: 53450, Stop: 52959, Start Num: 38

Candidate Starts for Lars\_59:

(1, 54230), (2, 54140), (4, 54014), (9, 53990), (27, 53552), (Start: 38 @53450 has 31 MA's), (41, 53417), (44, 53357), (57, 53315), (58, 53312), (59, 53282), (64, 53243), (65, 53240), (66, 53237), (81, 53162), (92, 53123), (93, 53117), (95, 53099), (105, 53066), (111, 53048), (125, 53003),

Gene: LasagnaCat\_63 Start: 54881, Stop: 54417, Start Num: 36

Candidate Starts for LasagnaCat\_63:

(Start: 36 @54881 has 299 MA's), (44, 54785), (45, 54776), (58, 54701), (65, 54629), (86, 54563), (88, 54557), (89, 54551), (94, 54524),

Gene: Lasso\_62 Start: 54738, Stop: 54280, Start Num: 36

Candidate Starts for Lasso\_62:

(Start: 36 @54738 has 299 MA's), (44, 54642), (45, 54633), (58, 54558), (65, 54486), (86, 54420), (88, 54414), (89, 54408), (94, 54381),

Gene: Laurie\_59 Start: 53177, Stop: 52686, Start Num: 38

Candidate Starts for Laurie\_59:

(Start: 38 @53177 has 31 MA's), (41, 53144), (44, 53084), (57, 53042), (58, 53039), (59, 53009), (64, 52970), (65, 52967), (66, 52964), (81, 52889), (92, 52850), (93, 52844), (95, 52826), (105, 52793), (111, 52775), (125, 52730),

Gene: LeeLot\_62 Start: 55093, Stop: 54635, Start Num: 36

Candidate Starts for LeeLot\_62:

(Start: 36 @55093 has 299 MA's), (44, 54997), (45, 54988), (58, 54913), (65, 54841), (86, 54775), (88, 54769), (89, 54763), (94, 54736),

Gene: Lego3393\_60 Start: 55044, Stop: 54586, Start Num: 36

Candidate Starts for Lego3393\_60:

(Start: 36 @55044 has 299 MA's), (44, 54948), (45, 54939), (58, 54864), (65, 54792), (86, 54726), (88, 54720), (89, 54714), (94, 54687),

Gene: Legolas\_63 Start: 54832, Stop: 54374, Start Num: 36

Candidate Starts for Legolas\_63:

(Start: 36 @54832 has 299 MA's), (44, 54736), (45, 54727), (58, 54652), (65, 54580), (86, 54514), (88, 54508), (89, 54502), (94, 54475),

Gene: LeiMonet\_64 Start: 54955, Stop: 54491, Start Num: 36

Candidate Starts for LeiMonet\_64:

(Start: 36 @54955 has 299 MA's), (44, 54859), (45, 54850), (58, 54775), (65, 54703), (86, 54637), (88, 54631), (89, 54625), (94, 54598),

Gene: LemonSlice\_62 Start: 54423, Stop: 53965, Start Num: 36

Candidate Starts for LemonSlice\_62:

(Start: 36 @54423 has 299 MA's), (44, 54327), (45, 54318), (58, 54243), (65, 54171), (86, 54105), (88, 54099), (89, 54093), (94, 54066),

Gene: Lephleur\_59 Start: 53359, Stop: 52871, Start Num: 38

Candidate Starts for Lephleur\_59:

(1, 54094), (2, 54004), (27, 53461), (Start: 38 @53359 has 31 MA's), (41, 53326), (44, 53266), (57, 53224), (58, 53221), (59, 53191), (64, 53152), (65, 53149), (66, 53146), (81, 53071), (92, 53032), (93, 53026), (95, 53008), (105, 52975), (111, 52957), (125, 52912),

Gene: LestyG\_60 Start: 54490, Stop: 54038, Start Num: 33

Candidate Starts for LestyG\_60:

(Start: 19 @54622 has 2 MA's), (22, 54601), (Start: 33 @54490 has 10 MA's), (Start: 36 @54487 has 299 MA's), (44, 54391), (58, 54325), (59, 54295), (65, 54253), (70, 54223), (72, 54220), (73, 54211), (79, 54196), (92, 54163),

Gene: LilMcDreamy\_56 Start: 54463, Stop: 53825, Start Num: 31

Candidate Starts for LilMcDreamy\_56:

(15, 54697), (16, 54682), (Start: 31 @54463 has 10 MA's), (41, 54421), (45, 54352), (49, 54325), (52, 54316), (59, 54253), (64, 54214), (73, 54175), (76, 54169), (90, 54139), (94, 54112), (101, 54076), (130, 53977), (132, 53968), (133, 53965), (147, 53881), (151, 53851),

Gene: LizLemon\_59 Start: 53475, Stop: 52984, Start Num: 38

Candidate Starts for LizLemon\_59:

(1, 54255), (2, 54165), (4, 54039), (9, 54015), (27, 53577), (Start: 38 @53475 has 31 MA's), (41, 53442), (44, 53382), (57, 53340), (58, 53337), (59, 53307), (64, 53268), (65, 53265), (66, 53262), (81, 53187), (92, 53148), (93, 53142), (95, 53124), (105, 53091), (111, 53073), (125, 53028),

Gene: Longacauda\_62 Start: 54858, Stop: 54394, Start Num: 36

Candidate Starts for Longacauda\_62:

(Start: 36 @54858 has 299 MA's), (44, 54762), (45, 54753), (58, 54678), (65, 54606), (86, 54540), (88, 54534), (89, 54528), (94, 54501),

Gene: Lopsy\_60 Start: 54151, Stop: 53693, Start Num: 36

Candidate Starts for Lopsy\_60:

(Start: 36 @54151 has 299 MA's), (44, 54055), (45, 54046), (58, 53971), (65, 53899), (86, 53833), (88, 53827), (89, 53821), (94, 53794),

Gene: LostAndPhound\_62 Start: 55037, Stop: 54579, Start Num: 36

Candidate Starts for LostAndPhound\_62:

(Start: 36 @55037 has 299 MA's), (44, 54941), (45, 54932), (58, 54857), (65, 54785), (86, 54719), (88, 54713), (89, 54707), (94, 54680),

Gene: LuckyMarjie\_59 Start: 54213, Stop: 53755, Start Num: 36

Candidate Starts for LuckyMarjie\_59:

(Start: 36 @54213 has 299 MA's), (44, 54117), (45, 54108), (58, 54033), (65, 53961), (86, 53895), (88, 53889), (89, 53883), (94, 53856),

Gene: Lulumae\_59 Start: 54198, Stop: 53740, Start Num: 36

Candidate Starts for Lulumae\_59:

(Start: 36 @54198 has 299 MA's), (44, 54102), (45, 54093), (58, 54018), (65, 53946), (86, 53880), (88, 53874), (89, 53868), (94, 53841),

Gene: Lulwa\_59 Start: 53795, Stop: 53337, Start Num: 36

Candidate Starts for Lulwa\_59:

(Start: 36 @53795 has 299 MA's), (44, 53699), (45, 53690), (58, 53615), (65, 53543), (86, 53477), (88, 53471), (89, 53465), (94, 53438),

Gene: Lumine\_62 Start: 54682, Stop: 54224, Start Num: 36

Candidate Starts for Lumine\_62:

(Start: 36 @54682 has 299 MA's), (44, 54586), (45, 54577), (58, 54502), (65, 54430), (86, 54364), (88, 54358), (89, 54352), (94, 54325),

Gene: MRabcd\_61 Start: 54806, Stop: 54348, Start Num: 36

Candidate Starts for MRabcd\_61:

(Start: 36 @54806 has 299 MA's), (44, 54710), (45, 54701), (58, 54626), (65, 54554), (86, 54488), (88, 54482), (89, 54476), (94, 54449),

Gene: Mag7\_62 Start: 54642, Stop: 54184, Start Num: 36

Candidate Starts for Mag7\_62:

(Start: 36 @54642 has 299 MA's), (44, 54546), (45, 54537), (58, 54462), (65, 54390), (86, 54324), (88, 54318), (89, 54312), (94, 54285),

Gene: Magic8\_62 Start: 54800, Stop: 54336, Start Num: 36

Candidate Starts for Magic8\_62:

(Start: 36 @54800 has 299 MA's), (44, 54704), (45, 54695), (58, 54620), (65, 54548), (86, 54482), (88, 54476), (89, 54470), (94, 54443),

Gene: Mana\_60 Start: 54478, Stop: 54020, Start Num: 36

Candidate Starts for Mana\_60:

(Start: 36 @54478 has 299 MA's), (44, 54382), (45, 54373), (58, 54298), (65, 54226), (86, 54160), (88, 54154), (89, 54148), (94, 54121),

Gene: Manad\_61 Start: 54762, Stop: 54304, Start Num: 36

Candidate Starts for Manad\_61:

(Start: 36 @54762 has 299 MA's), (44, 54666), (45, 54657), (58, 54582), (65, 54510), (86, 54444), (88, 54438), (89, 54432), (94, 54405),

Gene: Marley1013\_62 Start: 55685, Stop: 55236, Start Num: 36

Candidate Starts for Marley1013\_62:

(Start: 19 @55820 has 2 MA's), (22, 55799), (Start: 33 @55688 has 10 MA's), (Start: 36 @55685 has 299 MA's), (44, 55589), (58, 55523), (59, 55493), (70, 55421), (72, 55418), (73, 55409), (79, 55394), (92, 55361),

Gene: Maru\_61 Start: 54917, Stop: 54459, Start Num: 36

Candidate Starts for Maru\_61:

(Start: 36 @54917 has 299 MA's), (44, 54821), (45, 54812), (58, 54737), (65, 54665), (86, 54599), (88, 54593), (89, 54587), (94, 54560),

Gene: Maskar\_63 Start: 54718, Stop: 54254, Start Num: 36

Candidate Starts for Maskar\_63:

(Start: 36 @54718 has 299 MA's), (44, 54622), (45, 54613), (58, 54538), (65, 54466), (86, 54400), (88, 54394), (89, 54388), (94, 54361),

Gene: MasterPo\_59 Start: 53371, Stop: 52880, Start Num: 38

Candidate Starts for MasterPo\_59:

(Start: 38 @53371 has 31 MA's), (41, 53338), (44, 53278), (57, 53236), (58, 53233), (59, 53203), (64, 53164), (65, 53161), (66, 53158), (81, 53083), (92, 53044), (93, 53038), (95, 53020), (105, 52987), (111, 52969), (125, 52924),

Gene: Matalotodo\_61 Start: 55030, Stop: 54572, Start Num: 36

Candidate Starts for Matalotodo\_61:

(Start: 36 @55030 has 299 MA's), (44, 54934), (45, 54925), (58, 54850), (65, 54778), (86, 54712), (88, 54706), (89, 54700), (94, 54673),

Gene: Mcshane\_60 Start: 54476, Stop: 54018, Start Num: 36

Candidate Starts for Mcshane\_60:

(Start: 36 @54476 has 299 MA's), (44, 54380), (45, 54371), (58, 54296), (65, 54224), (86, 54158), (88, 54152), (89, 54146), (94, 54119),

Gene: Mecca\_61 Start: 55041, Stop: 54583, Start Num: 36

Candidate Starts for Mecca\_61:

(Start: 36 @55041 has 299 MA's), (44, 54945), (45, 54936), (58, 54861), (65, 54789), (86, 54723), (88, 54717), (89, 54711), (94, 54684),

Gene: Megamind20\_62 Start: 54464, Stop: 54006, Start Num: 36

Candidate Starts for Megamind20\_62:

(Start: 36 @54464 has 299 MA's), (44, 54368), (45, 54359), (58, 54284), (65, 54212), (86, 54146), (88, 54140), (89, 54134), (94, 54107),

Gene: Megatron\_62 Start: 54990, Stop: 54532, Start Num: 36

Candidate Starts for Megatron\_62:

(Start: 36 @54990 has 299 MA's), (44, 54894), (45, 54885), (58, 54810), (65, 54738), (86, 54672), (88, 54666), (89, 54660), (94, 54633),

Gene: Melc17\_61 Start: 55307, Stop: 54849, Start Num: 36

Candidate Starts for Melc17\_61:

(Start: 36 @55307 has 299 MA's), (44, 55211), (45, 55202), (58, 55127), (65, 55055), (86, 54989), (88, 54983), (89, 54977), (94, 54950),

Gene: MelsMeow\_62 Start: 54771, Stop: 54307, Start Num: 36

Candidate Starts for MelsMeow\_62:

(Start: 36 @54771 has 299 MA's), (44, 54675), (45, 54666), (58, 54591), (65, 54519), (86, 54453), (88, 54447), (89, 54441), (94, 54414),

Gene: Mesh1\_63 Start: 55054, Stop: 54596, Start Num: 36

Candidate Starts for Mesh1\_63:

(Start: 36 @55054 has 299 MA's), (44, 54958), (45, 54949), (58, 54874), (65, 54802), (86, 54736), (88, 54730), (89, 54724), (94, 54697),

Gene: MichaelPhcott\_62 Start: 54639, Stop: 54181, Start Num: 36

Candidate Starts for MichaelPhcott\_62:

(Start: 36 @54639 has 299 MA's), (44, 54543), (45, 54534), (58, 54459), (65, 54387), (86, 54321), (88, 54315), (89, 54309), (94, 54282),

Gene: Mikota\_60 Start: 54017, Stop: 53559, Start Num: 36

Candidate Starts for Mikota\_60:

(Start: 36 @54017 has 299 MA's), (44, 53921), (45, 53912), (58, 53837), (65, 53765), (86, 53699), (88, 53693), (89, 53687), (94, 53660),

Gene: MiniBoss\_59 Start: 53823, Stop: 53365, Start Num: 36

Candidate Starts for MiniBoss\_59:

(Start: 36 @53823 has 299 MA's), (44, 53727), (45, 53718), (58, 53643), (65, 53571), (86, 53505), (88, 53499), (89, 53493), (94, 53466),

Gene: MitKao\_61 Start: 54488, Stop: 54030, Start Num: 36

Candidate Starts for MitKao\_61:

(Start: 36 @54488 has 299 MA's), (44, 54392), (45, 54383), (58, 54308), (65, 54236), (86, 54170), (88, 54164), (89, 54158), (94, 54131),



Gene: MmasiCarm\_63 Start: 55414, Stop: 54938, Start Num: 36

Candidate Starts for MmasiCarm\_63:

(Start: 19 @55549 has 2 MA's), (22, 55528), (Start: 33 @55417 has 10 MA's), (Start: 36 @55414 has 299 MA's), (44, 55318), (58, 55252), (59, 55222), (70, 55150), (72, 55147), (73, 55138), (79, 55123), (92, 55066),

Gene: Morgushi\_61 Start: 54477, Stop: 54019, Start Num: 36

Candidate Starts for Morgushi\_61:

(Start: 36 @54477 has 299 MA's), (44, 54381), (45, 54372), (58, 54297), (65, 54225), (86, 54159), (88, 54153), (89, 54147), (94, 54120),

Gene: Mortcellus\_62 Start: 56075, Stop: 55593, Start Num: 33

Candidate Starts for Mortcellus\_62:

(Start: 19 @56207 has 2 MA's), (22, 56186), (Start: 33 @56075 has 10 MA's), (Start: 36 @56072 has 299 MA's), (44, 55976), (58, 55910), (59, 55880), (70, 55808), (72, 55805), (73, 55796), (79, 55781), (92, 55724),

Gene: Morty\_62 Start: 55005, Stop: 54541, Start Num: 36

Candidate Starts for Morty\_62:

(Start: 36 @55005 has 299 MA's), (44, 54909), (45, 54900), (58, 54825), (65, 54753), (86, 54687), (88, 54681), (89, 54675), (94, 54648),

Gene: Morty007\_61 Start: 55820, Stop: 55236, Start Num: 19

Candidate Starts for Morty007\_61:

(Start: 19 @55820 has 2 MA's), (22, 55799), (Start: 33 @55688 has 10 MA's), (Start: 36 @55685 has 299 MA's), (44, 55589), (58, 55523), (59, 55493), (70, 55421), (72, 55418), (73, 55409), (79, 55394), (92, 55361),

Gene: Mosaic\_60 Start: 54482, Stop: 54024, Start Num: 36

Candidate Starts for Mosaic\_60:

(Start: 36 @54482 has 299 MA's), (44, 54386), (45, 54377), (58, 54302), (65, 54230), (86, 54164), (88, 54158), (89, 54152), (94, 54125),

Gene: MrPhizzler\_62 Start: 54945, Stop: 54487, Start Num: 36

Candidate Starts for MrPhizzler\_62:

(Start: 36 @54945 has 299 MA's), (44, 54849), (45, 54840), (58, 54765), (65, 54693), (86, 54627), (88, 54621), (89, 54615), (94, 54588),

Gene: Mulan\_61 Start: 54716, Stop: 54258, Start Num: 36

Candidate Starts for Mulan\_61:

(Start: 36 @54716 has 299 MA's), (44, 54620), (45, 54611), (58, 54536), (65, 54464), (86, 54398), (88, 54392), (89, 54386), (94, 54359),

Gene: Murdoc\_60 Start: 54478, Stop: 54020, Start Num: 36

Candidate Starts for Murdoc\_60:

(Start: 36 @54478 has 299 MA's), (44, 54382), (45, 54373), (58, 54298), (65, 54226), (86, 54160), (88, 54154), (89, 54148), (94, 54121),

Gene: Mutante\_61 Start: 54488, Stop: 54030, Start Num: 36

Candidate Starts for Mutante\_61:

(Start: 36 @54488 has 299 MA's), (44, 54392), (45, 54383), (58, 54308), (65, 54236), (86, 54170), (88, 54164), (89, 54158), (94, 54131),

Gene: Mysterious\_59 Start: 55230, Stop: 54571, Start Num: 31

Candidate Starts for Mysterious\_59:

(Start: 31 @55230 has 10 MA's), (41, 55188), (42, 55173), (57, 55041), (59, 55008), (61, 54987), (64, 54969), (68, 54951), (80, 54903), (84, 54894), (100, 54819), (101, 54813), (121, 54741), (126, 54729),

Gene: Nacho\_0063 Start: 55236, Stop: 54778, Start Num: 36

Candidate Starts for Nacho\_0063:

(Start: 36 @55236 has 299 MA's), (44, 55140), (45, 55131), (58, 55056), (65, 54984), (86, 54918), (88, 54912), (89, 54906), (94, 54879),

Gene: Nangang\_59 Start: 55409, Stop: 54777, Start Num: 31

Candidate Starts for Nangang\_59:

(Start: 31 @55409 has 10 MA's), (41, 55367), (57, 55220), (59, 55187), (61, 55166), (64, 55148), (78, 55094), (81, 55082), (94, 55031), (100, 55001), (101, 54995), (109, 54968), (110, 54965),

Gene: Nehemiah\_58 Start: 55230, Stop: 54571, Start Num: 31

Candidate Starts for Nehemiah\_58:

(Start: 31 @55230 has 10 MA's), (41, 55188), (42, 55173), (57, 55041), (59, 55008), (61, 54987), (64, 54969), (68, 54951), (80, 54903), (84, 54894), (100, 54819), (101, 54813), (121, 54741), (126, 54729),

Gene: Neos5\_61 Start: 55147, Stop: 54698, Start Num: 36

Candidate Starts for Neos5\_61:

(Start: 19 @55282 has 2 MA's), (22, 55261), (Start: 33 @55150 has 10 MA's), (Start: 36 @55147 has 299 MA's), (44, 55051), (58, 54985), (59, 54955), (70, 54883), (72, 54880), (73, 54871), (79, 54856), (92, 54823),

Gene: Newman\_60 Start: 54514, Stop: 54056, Start Num: 36

Candidate Starts for Newman\_60:

(Start: 36 @54514 has 299 MA's), (44, 54418), (45, 54409), (58, 54334), (65, 54262), (86, 54196), (88, 54190), (89, 54184), (94, 54157),

Gene: Nicole21\_62 Start: 54767, Stop: 54309, Start Num: 36

Candidate Starts for Nicole21\_62:

(Start: 36 @54767 has 299 MA's), (44, 54671), (45, 54662), (58, 54587), (65, 54515), (86, 54449), (88, 54443), (89, 54437), (94, 54410),

Gene: Nigel\_56 Start: 54670, Stop: 54173, Start Num: 28

Candidate Starts for Nigel\_56:

(Start: 28 @54670 has 3 MA's), (44, 54559), (45, 54550), (55, 54511), (58, 54505), (61, 54454), (64, 54436), (65, 54433), (67, 54427), (87, 54355), (97, 54286),

Gene: Nozo\_62 Start: 55768, Stop: 55292, Start Num: 36

Candidate Starts for Nozo\_62:

(Start: 19 @55903 has 2 MA's), (22, 55882), (Start: 33 @55771 has 10 MA's), (Start: 36 @55768 has 299 MA's), (44, 55672), (58, 55606), (59, 55576), (70, 55504), (72, 55501), (73, 55492), (79, 55477), (92, 55420),

Gene: Numberten\_61 Start: 54711, Stop: 54253, Start Num: 36

Candidate Starts for Numberten\_61:

(Start: 36 @54711 has 299 MA's), (44, 54615), (45, 54606), (58, 54531), (65, 54459), (86, 54393), (88, 54387), (89, 54381), (94, 54354),

Gene: Nyala\_60 Start: 54486, Stop: 54028, Start Num: 36

Candidate Starts for Nyala\_60:

(Start: 36 @54486 has 299 MA's), (44, 54390), (45, 54381), (58, 54306), (65, 54234), (86, 54168), (88, 54162), (89, 54156), (94, 54129),

Gene: OSmaximus\_63 Start: 55232, Stop: 54774, Start Num: 36

Candidate Starts for OSmaximus\_63:

(Start: 36 @55232 has 299 MA's), (44, 55136), (45, 55127), (58, 55052), (65, 54980), (86, 54914), (88, 54908), (89, 54902), (94, 54875),

Gene: Obutu\_63 Start: 55367, Stop: 54891, Start Num: 36

Candidate Starts for Obutu\_63:

(10, 55760), (11, 55634), (12, 55616), (Start: 19 @55502 has 2 MA's), (22, 55481), (Start: 33 @55370 has 10 MA's), (Start: 36 @55367 has 299 MA's), (44, 55271), (58, 55205), (59, 55175), (70, 55103), (72, 55100), (73, 55091), (79, 55076), (92, 55019),

Gene: Olak\_60 Start: 54489, Stop: 54031, Start Num: 36

Candidate Starts for Olak\_60:

(Start: 36 @54489 has 299 MA's), (44, 54393), (45, 54384), (58, 54309), (65, 54237), (86, 54171), (88, 54165), (89, 54159), (94, 54132),

Gene: Oline\_62 Start: 54590, Stop: 54132, Start Num: 36

Candidate Starts for Oline\_62:

(Start: 36 @54590 has 299 MA's), (44, 54494), (45, 54485), (58, 54410), (65, 54338), (86, 54272), (88, 54266), (89, 54260), (94, 54233),

Gene: Olive\_61 Start: 54702, Stop: 54244, Start Num: 36

Candidate Starts for Olive\_61:

(Start: 36 @54702 has 299 MA's), (44, 54606), (45, 54597), (58, 54522), (65, 54450), (86, 54384), (88, 54378), (89, 54372), (94, 54345),

Gene: OliverWalter\_60 Start: 54521, Stop: 54063, Start Num: 36

Candidate Starts for OliverWalter\_60:

(Start: 36 @54521 has 299 MA's), (44, 54425), (45, 54416), (58, 54341), (65, 54269), (86, 54203), (88, 54197), (89, 54191), (94, 54164),

Gene: Omniscient\_62 Start: 55349, Stop: 54891, Start Num: 36

Candidate Starts for Omniscient\_62:

(Start: 36 @55349 has 299 MA's), (44, 55253), (45, 55244), (58, 55169), (65, 55097), (86, 55031), (88, 55025), (89, 55019), (94, 54992),

Gene: Oosterbaan\_61 Start: 54768, Stop: 54310, Start Num: 36

Candidate Starts for Oosterbaan\_61:

(Start: 36 @54768 has 299 MA's), (44, 54672), (45, 54663), (58, 54588), (65, 54516), (86, 54450), (88, 54444), (89, 54438), (94, 54411),

Gene: Opia\_59 Start: 53365, Stop: 52874, Start Num: 38

Candidate Starts for Opia\_59:

(1, 54145), (2, 54055), (4, 53929), (9, 53905), (27, 53467), (Start: 38 @53365 has 31 MA's), (41, 53332), (44, 53272), (57, 53230), (58, 53227), (59, 53197), (64, 53158), (65, 53155), (66, 53152), (81, 53077), (92, 53038), (93, 53032), (95, 53014), (105, 52981), (111, 52963), (125, 52918),

Gene: OrangeOswald\_62 Start: 55009, Stop: 54533, Start Num: 36

Candidate Starts for OrangeOswald\_62:

(Start: 19 @55144 has 2 MA's), (22, 55123), (Start: 33 @55012 has 10 MA's), (Start: 36 @55009 has 299 MA's), (44, 54913), (58, 54847), (59, 54817), (70, 54745), (72, 54742), (73, 54733), (79, 54718), (92, 54661),

Gene: Orfeu\_60 Start: 55025, Stop: 54567, Start Num: 36

Candidate Starts for Orfeu\_60:

(Start: 36 @55025 has 299 MA's), (44, 54929), (45, 54920), (58, 54845), (65, 54773), (86, 54707), (88, 54701), (89, 54695), (94, 54668),

Gene: Orion\_63 Start: 54430, Stop: 53972, Start Num: 36

Candidate Starts for Orion\_63:

(Start: 36 @54430 has 299 MA's), (44, 54334), (45, 54325), (58, 54250), (65, 54178), (86, 54112), (88, 54106), (89, 54100), (94, 54073),

Gene: Orwigg\_62 Start: 54410, Stop: 53952, Start Num: 36

Candidate Starts for Orwigg\_62:

(Start: 36 @54410 has 299 MA's), (44, 54314), (45, 54305), (58, 54230), (65, 54158), (86, 54092), (88, 54086), (89, 54080), (94, 54053),

Gene: PG1\_62 Start: 55001, Stop: 54543, Start Num: 36

Candidate Starts for PG1\_62:

(Start: 36 @55001 has 299 MA's), (44, 54905), (45, 54896), (58, 54821), (65, 54749), (86, 54683), (88, 54677), (89, 54671), (94, 54644),

Gene: Pacifista\_60 Start: 54485, Stop: 54027, Start Num: 36

Candidate Starts for Pacifista\_60:

(Start: 36 @54485 has 299 MA's), (44, 54389), (45, 54380), (58, 54305), (65, 54233), (86, 54167), (88, 54161), (89, 54155), (94, 54128),

Gene: PenguinLover67\_57 Start: 55284, Stop: 54688, Start Num: 29

Candidate Starts for PenguinLover67\_57:

(25, 55380), (Start: 29 @55284 has 3 MA's), (44, 55176), (55, 55137), (61, 55083), (64, 55065), (77, 55011), (99, 54915), (108, 54888), (109, 54885), (122, 54840), (149, 54708),

Gene: Phaedrus\_58 Start: 54577, Stop: 53966, Start Num: 19

Candidate Starts for Phaedrus\_58:

(Start: 19 @54577 has 2 MA's), (22, 54556), (Start: 33 @54445 has 10 MA's), (Start: 36 @54442 has 299 MA's), (44, 54346), (58, 54280), (59, 54250), (70, 54178), (72, 54175), (73, 54166), (79, 54151), (92, 54094),

Gene: Phamished\_63 Start: 54698, Stop: 54234, Start Num: 36

Candidate Starts for Phamished\_63:

(Start: 36 @54698 has 299 MA's), (44, 54602), (45, 54593), (58, 54518), (65, 54446), (86, 54380), (88, 54374), (89, 54368), (94, 54341),

Gene: Phantasmagoria\_59 Start: 53363, Stop: 52872, Start Num: 38

Candidate Starts for Phantasmagoria\_59:

(27, 53465), (Start: 38 @53363 has 31 MA's), (41, 53330), (44, 53270), (57, 53228), (58, 53225), (59, 53195), (64, 53156), (65, 53153), (66, 53150), (81, 53075), (92, 53036), (93, 53030), (95, 53012), (105, 52979), (111, 52961), (125, 52916),

Gene: Phareon\_60 Start: 54207, Stop: 53749, Start Num: 36

Candidate Starts for Phareon\_60:

(Start: 36 @54207 has 299 MA's), (44, 54111), (45, 54102), (58, 54027), (65, 53955), (86, 53889), (88, 53883), (89, 53877), (94, 53850),

Gene: PhatCats2014\_62 Start: 55006, Stop: 54548, Start Num: 36

Candidate Starts for PhatCats2014\_62:

(Start: 36 @55006 has 299 MA's), (44, 54910), (45, 54901), (58, 54826), (65, 54754), (86, 54688), (88, 54682), (89, 54676), (94, 54649),

Gene: PhatLouie\_63 Start: 55024, Stop: 54566, Start Num: 36

Candidate Starts for PhatLouie\_63:

(Start: 36 @55024 has 299 MA's), (44, 54928), (45, 54919), (58, 54844), (65, 54772), (86, 54706), (88, 54700), (89, 54694), (94, 54667),

Gene: Phayeta\_64 Start: 55269, Stop: 54793, Start Num: 36

Candidate Starts for Phayeta\_64:

(Start: 33 @55272 has 10 MA's), (Start: 36 @55269 has 299 MA's), (44, 55173), (58, 55107), (59, 55077), (70, 55005), (72, 55002), (73, 54993), (79, 54978), (92, 54921),

Gene: Phelemich\_57 Start: 55226, Stop: 54567, Start Num: 31

Candidate Starts for Phelemich\_57:

(Start: 31 @55226 has 10 MA's), (41, 55184), (42, 55169), (57, 55037), (59, 55004), (61, 54983), (64, 54965), (77, 54908), (80, 54896), (100, 54815), (101, 54809), (102, 54806), (121, 54737), (126, 54725),

Gene: PhenghisKhan\_62 Start: 54655, Stop: 54191, Start Num: 36

Candidate Starts for PhenghisKhan\_62:

(Start: 36 @54655 has 299 MA's), (44, 54559), (45, 54550), (58, 54475), (65, 54403), (86, 54337), (88, 54331), (89, 54325), (94, 54298),

Gene: Pherdinand\_63 Start: 54769, Stop: 54311, Start Num: 36

Candidate Starts for Pherdinand\_63:

(Start: 36 @54769 has 299 MA's), (44, 54673), (45, 54664), (58, 54589), (65, 54517), (86, 54451), (88, 54445), (89, 54439), (94, 54412),

Gene: Phergie\_63 Start: 54647, Stop: 54183, Start Num: 36

Candidate Starts for Phergie\_63:

(Start: 36 @54647 has 299 MA's), (44, 54551), (45, 54542), (58, 54467), (65, 54395), (86, 54329), (88, 54323), (89, 54317), (94, 54290),

Gene: Philly\_61 Start: 54829, Stop: 54353, Start Num: 36

Candidate Starts for Philly\_61:

(10, 55222), (11, 55096), (12, 55078), (Start: 19 @54964 has 2 MA's), (22, 54943), (Start: 33 @54832 has 10 MA's), (Start: 36 @54829 has 299 MA's), (44, 54733), (58, 54667), (59, 54637), (70, 54565), (72, 54562), (73, 54553), (79, 54538), (92, 54481),

Gene: Phipps\_61 Start: 54278, Stop: 53820, Start Num: 36

Candidate Starts for Phipps\_61:

(Start: 36 @54278 has 299 MA's), (44, 54182), (45, 54173), (58, 54098), (65, 54026), (86, 53960), (88, 53954), (89, 53948), (94, 53921),

Gene: Phleuron\_62 Start: 54642, Stop: 54184, Start Num: 36

Candidate Starts for Phleuron\_62:

(Start: 36 @54642 has 299 MA's), (44, 54546), (45, 54537), (58, 54462), (65, 54390), (86, 54324), (88, 54318), (89, 54312), (94, 54285),

Gene: Phlyer\_62 Start: 55723, Stop: 55235, Start Num: 36

Candidate Starts for Phlyer\_62:

(Start: 19 @55858 has 2 MA's), (22, 55837), (Start: 33 @55726 has 10 MA's), (Start: 36 @55723 has 299 MA's), (44, 55627), (58, 55561), (59, 55531), (65, 55489), (70, 55459), (72, 55456), (73, 55447), (79, 55432), (92, 55369),

Gene: PhrankReynolds\_61 Start: 54652, Stop: 54188, Start Num: 36

Candidate Starts for PhrankReynolds\_61:

(Start: 36 @54652 has 299 MA's), (44, 54556), (45, 54547), (58, 54472), (65, 54400), (86, 54334), (88, 54328), (89, 54322), (94, 54295),

Gene: PhrodoBaggins\_62 Start: 54872, Stop: 54408, Start Num: 36

Candidate Starts for PhrodoBaggins\_62:

(Start: 36 @54872 has 299 MA's), (44, 54776), (45, 54767), (58, 54692), (65, 54620), (86, 54554), (88, 54548), (89, 54542), (94, 54515),

Gene: Phunky\_60 Start: 54504, Stop: 54046, Start Num: 36

Candidate Starts for Phunky\_60:

(Start: 36 @54504 has 299 MA's), (44, 54408), (45, 54399), (58, 54324), (65, 54252), (86, 54186), (88, 54180), (89, 54174), (94, 54147),

Gene: Piglet\_0061 Start: 54978, Stop: 54520, Start Num: 36

Candidate Starts for Piglet\_0061:

(Start: 36 @54978 has 299 MA's), (44, 54882), (45, 54873), (58, 54798), (65, 54726), (86, 54660), (88, 54654), (89, 54648), (94, 54621),

Gene: PinheadLarry\_62 Start: 55003, Stop: 54545, Start Num: 36

Candidate Starts for PinheadLarry\_62:

(Start: 36 @55003 has 299 MA's), (44, 54907), (45, 54898), (58, 54823), (65, 54751), (86, 54685), (88, 54679), (89, 54673), (94, 54646),

Gene: Pinkman\_61 Start: 54590, Stop: 54126, Start Num: 36

Candidate Starts for Pinkman\_61:

(Start: 36 @54590 has 299 MA's), (44, 54494), (45, 54485), (58, 54410), (65, 54338), (86, 54272), (88, 54266), (89, 54260), (94, 54233),

Gene: Pipefish\_63 Start: 55749, Stop: 55264, Start Num: 33

Candidate Starts for Pipefish\_63:

(Start: 33 @55749 has 10 MA's), (Start: 36 @55746 has 299 MA's), (44, 55650), (58, 55584), (59, 55554), (65, 55512), (70, 55482), (72, 55479), (73, 55470), (79, 55455), (92, 55395),

Gene: Pipsqueak\_60 Start: 54434, Stop: 53976, Start Num: 36

Candidate Starts for Pipsqueak\_60:

(Start: 36 @54434 has 299 MA's), (44, 54338), (45, 54329), (58, 54254), (65, 54182), (86, 54116), (88, 54110), (89, 54104), (94, 54077),

Gene: Placalicious\_62 Start: 55535, Stop: 55077, Start Num: 36

Candidate Starts for Placalicious\_62:

(Start: 36 @55535 has 299 MA's), (44, 55439), (45, 55430), (58, 55355), (65, 55283), (86, 55217), (88, 55211), (89, 55205), (94, 55178),

Gene: Plmatters\_60 Start: 54508, Stop: 54050, Start Num: 36

Candidate Starts for Plmatters\_60:

(Start: 36 @54508 has 299 MA's), (44, 54412), (45, 54403), (58, 54328), (65, 54256), (86, 54190), (88, 54184), (89, 54178), (94, 54151),

Gene: Podrick\_60 Start: 54287, Stop: 53829, Start Num: 36

Candidate Starts for Podrick\_60:

(Start: 36 @54287 has 299 MA's), (44, 54191), (45, 54182), (58, 54107), (65, 54035), (86, 53969), (88, 53963), (89, 53957), (94, 53930),

Gene: Pops\_61 Start: 54693, Stop: 54235, Start Num: 36

Candidate Starts for Pops\_61:

(Start: 36 @54693 has 299 MA's), (44, 54597), (45, 54588), (58, 54513), (65, 54441), (86, 54375), (88, 54369), (89, 54363), (94, 54336),

Gene: Potter\_60 Start: 54499, Stop: 54041, Start Num: 36

Candidate Starts for Potter\_60:

(Start: 36 @54499 has 299 MA's), (44, 54403), (45, 54394), (58, 54319), (65, 54247), (86, 54181), (88, 54175), (89, 54169), (94, 54142),

Gene: Prickles\_63 Start: 54999, Stop: 54541, Start Num: 36

Candidate Starts for Prickles\_63:

(Start: 36 @54999 has 299 MA's), (44, 54903), (45, 54894), (58, 54819), (65, 54747), (86, 54681), (88, 54675), (89, 54669), (94, 54642),

Gene: ProfessorX\_61 Start: 54498, Stop: 54040, Start Num: 36

Candidate Starts for ProfessorX\_61:

(Start: 36 @54498 has 299 MA's), (44, 54402), (45, 54393), (58, 54318), (65, 54246), (86, 54180), (88, 54174), (89, 54168), (94, 54141),

Gene: Puhltonio\_61 Start: 54773, Stop: 54315, Start Num: 36

Candidate Starts for Puhltonio\_61:

(Start: 36 @54773 has 299 MA's), (44, 54677), (45, 54668), (58, 54593), (65, 54521), (86, 54455), (88, 54449), (89, 54443), (94, 54416),

Gene: QueenBeane\_61 Start: 54805, Stop: 54347, Start Num: 36

Candidate Starts for QueenBeane\_61:

(Start: 36 @54805 has 299 MA's), (44, 54709), (45, 54700), (58, 54625), (65, 54553), (86, 54487), (88, 54481), (89, 54475), (94, 54448),

Gene: Quesadilla\_59 Start: 55551, Stop: 54994, Start Num: 29

Candidate Starts for Quesadilla\_59:

(25, 55647), (Start: 29 @55551 has 3 MA's), (37, 55533), (43, 55467), (44, 55443), (55, 55404), (61, 55350), (64, 55332), (87, 55254), (99, 55182), (108, 55155), (122, 55107), (135, 55062), (136, 55059), (142, 55023), (143, 55014), (144, 55008),

Gene: Quisquilliae\_62 Start: 54766, Stop: 54308, Start Num: 36

Candidate Starts for Quisquilliae\_62:

(Start: 36 @54766 has 299 MA's), (44, 54670), (45, 54661), (58, 54586), (65, 54514), (86, 54448), (88, 54442), (89, 54436), (94, 54409),

Gene: Qyrzula\_54 Start: 53476, Stop: 52985, Start Num: 38

Candidate Starts for Qyrzula\_54:

(2, 54166), (4, 54040), (9, 54016), (27, 53578), (Start: 38 @53476 has 31 MA's), (41, 53443), (44, 53383), (57, 53341), (58, 53338), (59, 53308), (64, 53269), (65, 53266), (66, 53263), (81, 53188), (92, 53149), (93, 53143), (95, 53125), (105, 53092), (111, 53074), (125, 53029),

Gene: RagingRooster\_61 Start: 54660, Stop: 54181, Start Num: 33

Candidate Starts for RagingRooster\_61:

(Start: 19 @54792 has 2 MA's), (22, 54771), (Start: 33 @54660 has 10 MA's), (Start: 36 @54657 has 299 MA's), (44, 54561), (58, 54495), (59, 54465), (70, 54393), (72, 54390), (73, 54381), (79, 54366), (92, 54309),

Gene: RedMaple\_63 Start: 55241, Stop: 54783, Start Num: 36

Candidate Starts for RedMaple\_63:

(Start: 36 @55241 has 299 MA's), (44, 55145), (45, 55136), (50, 55097), (58, 55061), (65, 54989), (86, 54923), (88, 54917), (89, 54911), (94, 54884),

Gene: Reprobate\_58 Start: 55231, Stop: 54572, Start Num: 31

Candidate Starts for Reprobate\_58:

(Start: 31 @55231 has 10 MA's), (41, 55189), (42, 55174), (57, 55042), (59, 55009), (61, 54988), (64, 54970), (77, 54913), (80, 54901), (100, 54820), (101, 54814), (102, 54811), (121, 54742), (126, 54730),

Gene: Rhinoforte\_59 Start: 53472, Stop: 52984, Start Num: 38

Candidate Starts for Rhinoforte\_59:

(Start: 38 @53472 has 31 MA's), (41, 53439), (44, 53379), (57, 53337), (58, 53334), (59, 53304), (64, 53265), (65, 53262), (66, 53259), (81, 53184), (92, 53145), (93, 53139), (95, 53121), (105, 53088), (106, 53085), (111, 53070), (125, 53025),

Gene: Rich\_59 Start: 56438, Stop: 55833, Start Num: 31

Candidate Starts for Rich\_59:

(16, 56660), (24, 56555), (Start: 31 @56438 has 10 MA's), (41, 56396), (45, 56327), (57, 56282), (59, 56252), (61, 56231), (64, 56213), (84, 56138), (95, 56087), (109, 56036), (114, 56024), (115, 56015), (133, 55952),

Gene: Ricotta\_61 Start: 54498, Stop: 54040, Start Num: 36

Candidate Starts for Ricotta\_61:

(Start: 36 @54498 has 299 MA's), (44, 54402), (45, 54393), (58, 54318), (65, 54246), (86, 54180), (88, 54174), (89, 54168), (94, 54141),

Gene: Riggan\_62 Start: 54798, Stop: 54340, Start Num: 36

Candidate Starts for Riggan\_62:

(Start: 36 @54798 has 299 MA's), (44, 54702), (45, 54693), (58, 54618), (65, 54546), (86, 54480), (88, 54474), (89, 54468), (94, 54441),

Gene: Rimu\_64 Start: 54966, Stop: 54508, Start Num: 36

Candidate Starts for Rimu\_64:

(Start: 36 @54966 has 299 MA's), (44, 54870), (45, 54861), (58, 54786), (65, 54714), (86, 54648), (88, 54642), (89, 54636), (94, 54609),

Gene: Rinkes\_57 Start: 55106, Stop: 54540, Start Num: 30

Candidate Starts for Rinkes\_57:

(14, 55361), (20, 55250), (Start: 30 @55106 has 3 MA's), (35, 55091), (44, 54983), (45, 54974), (58, 54917), (59, 54887), (65, 54845), (69, 54818), (70, 54815), (74, 54800), (89, 54752), (94, 54725), (96,



54707), (110, 54665), (114, 54656), (138, 54554), (139, 54551),

Gene: Rita1961\_63 Start: 55367, Stop: 54891, Start Num: 36

Candidate Starts for Rita1961\_63:

(Start: 19 @55502 has 2 MA's), (22, 55481), (Start: 33 @55370 has 10 MA's), (Start: 36 @55367 has 299 MA's), (44, 55271), (58, 55205), (59, 55175), (70, 55103), (72, 55100), (73, 55091), (79, 55076), (92, 55019),

Gene: Robyn\_61 Start: 54645, Stop: 54187, Start Num: 36

Candidate Starts for Robyn\_61:

(Start: 36 @54645 has 299 MA's), (44, 54549), (45, 54540), (58, 54465), (65, 54393), (86, 54327), (88, 54321), (89, 54315), (94, 54288), (116, 54219),

Gene: Roliet\_59 Start: 53840, Stop: 53382, Start Num: 36

Candidate Starts for Roliet\_59:

(Start: 36 @53840 has 299 MA's), (44, 53744), (45, 53735), (58, 53660), (65, 53588), (86, 53522), (88, 53516), (89, 53510), (94, 53483),

Gene: RomaT\_62 Start: 55569, Stop: 55090, Start Num: 33

Candidate Starts for RomaT\_62:

(Start: 19 @55701 has 2 MA's), (22, 55680), (Start: 33 @55569 has 10 MA's), (Start: 36 @55566 has 299 MA's), (44, 55470), (58, 55404), (59, 55374), (70, 55302), (72, 55299), (73, 55290), (79, 55275), (92, 55218),

Gene: Roscoe\_62 Start: 54944, Stop: 54486, Start Num: 36

Candidate Starts for Roscoe\_62:

(Start: 36 @54944 has 299 MA's), (44, 54848), (45, 54839), (58, 54764), (65, 54692), (86, 54626), (88, 54620), (89, 54614), (94, 54587),

Gene: Rosebush\_58 Start: 53499, Stop: 53011, Start Num: 38

Candidate Starts for Rosebush\_58:

(Start: 38 @53499 has 31 MA's), (41, 53466), (44, 53406), (57, 53364), (58, 53361), (59, 53331), (64, 53292), (65, 53289), (66, 53286), (81, 53211), (92, 53172), (93, 53166), (95, 53148), (105, 53115), (111, 53097), (125, 53052),

Gene: Roy17\_60 Start: 54198, Stop: 53740, Start Num: 36

Candidate Starts for Roy17\_60:

(Start: 36 @54198 has 299 MA's), (44, 54102), (45, 54093), (58, 54018), (65, 53946), (86, 53880), (88, 53874), (89, 53868), (94, 53841),

Gene: SDcharge11\_61 Start: 54012, Stop: 53554, Start Num: 36

Candidate Starts for SDcharge11\_61:

(Start: 36 @54012 has 299 MA's), (44, 53916), (45, 53907), (58, 53832), (65, 53760), (86, 53694), (88, 53688), (89, 53682), (94, 53655),

Gene: Sabella\_58 Start: 53335, Stop: 52856, Start Num: 38

Candidate Starts for Sabella\_58:

(Start: 38 @53335 has 31 MA's), (41, 53302), (44, 53242), (57, 53200), (58, 53197), (59, 53167), (64, 53128), (65, 53125), (66, 53122), (92, 53017), (93, 53011), (95, 52993), (105, 52960), (111, 52942), (125, 52897),

Gene: Samaymay\_61 Start: 54805, Stop: 54347, Start Num: 36

Candidate Starts for Samaymay\_61:

(Start: 36 @54805 has 299 MA's), (44, 54709), (45, 54700), (58, 54625), (65, 54553), (86, 54487), (88, 54481), (89, 54475), (94, 54448),

Gene: SassyCat97\_60 Start: 54490, Stop: 54032, Start Num: 36

Candidate Starts for SassyCat97\_60:

(Start: 36 @54490 has 299 MA's), (44, 54394), (45, 54385), (58, 54310), (65, 54238), (86, 54172), (88, 54166), (89, 54160), (94, 54133),

Gene: Schadenfreude\_61 Start: 54370, Stop: 53912, Start Num: 36

Candidate Starts for Schadenfreude\_61:

(Start: 36 @54370 has 299 MA's), (44, 54274), (45, 54265), (58, 54190), (65, 54118), (86, 54052), (88, 54046), (89, 54040), (94, 54013),

Gene: Schueller\_63 Start: 54727, Stop: 54269, Start Num: 36

Candidate Starts for Schueller\_63:

(Start: 36 @54727 has 299 MA's), (44, 54631), (45, 54622), (58, 54547), (65, 54475), (86, 54409), (88, 54403), (89, 54397), (94, 54370),

Gene: Scoot17C\_62 Start: 54432, Stop: 53974, Start Num: 36

Candidate Starts for Scoot17C\_62:

(Start: 36 @54432 has 299 MA's), (44, 54336), (45, 54327), (58, 54252), (65, 54180), (86, 54114), (88, 54108), (89, 54102), (94, 54075),

Gene: Scrick\_62 Start: 54504, Stop: 54046, Start Num: 36

Candidate Starts for Scrick\_62:

(Start: 36 @54504 has 299 MA's), (44, 54408), (45, 54399), (58, 54324), (65, 54252), (86, 54186), (88, 54180), (89, 54174), (94, 54147),

Gene: Selr12\_62 Start: 54514, Stop: 54056, Start Num: 36

Candidate Starts for Selr12\_62:

(Start: 36 @54514 has 299 MA's), (44, 54418), (45, 54409), (58, 54334), (65, 54262), (86, 54196), (88, 54190), (89, 54184), (94, 54157),

Gene: Serendipitous\_58 Start: 54821, Stop: 54153, Start Num: 31

Candidate Starts for Serendipitous\_58:

(Start: 31 @54821 has 10 MA's), (41, 54779), (57, 54632), (59, 54599), (61, 54578), (64, 54560), (81, 54494), (109, 54386), (114, 54374),

Gene: Serendipity\_61 Start: 54787, Stop: 54329, Start Num: 36

Candidate Starts for Serendipity\_61:

(Start: 36 @54787 has 299 MA's), (44, 54691), (45, 54682), (58, 54607), (65, 54535), (86, 54469), (88, 54463), (89, 54457), (94, 54430),

Gene: Serpentine\_0061 Start: 54870, Stop: 54412, Start Num: 36

Candidate Starts for Serpentine\_0061:

(Start: 36 @54870 has 299 MA's), (44, 54774), (45, 54765), (58, 54690), (65, 54618), (86, 54552), (88, 54546), (89, 54540), (94, 54513),

Gene: Sheila\_59 Start: 53872, Stop: 53414, Start Num: 36

Candidate Starts for Sheila\_59:

(Start: 36 @53872 has 299 MA's), (44, 53776), (45, 53767), (58, 53692), (65, 53620), (86, 53554), (88, 53548), (89, 53542), (94, 53515),

Gene: Shenyu\_59 Start: 55433, Stop: 54810, Start Num: 31

Candidate Starts for Shenyu\_59:

(7, 55958), (16, 55652), (Start: 31 @55433 has 10 MA's), (41, 55391), (57, 55244), (59, 55211), (60, 55205), (61, 55190), (64, 55172), (78, 55118), (81, 55106), (109, 54998), (114, 54986),

Gene: ShiVal\_59 Start: 54509, Stop: 54051, Start Num: 36

Candidate Starts for ShiVal\_59:

(Start: 36 @54509 has 299 MA's), (44, 54413), (45, 54404), (58, 54329), (65, 54257), (86, 54191), (88, 54185), (89, 54179), (94, 54152),

Gene: Sigman\_62 Start: 54465, Stop: 54007, Start Num: 36

Candidate Starts for Sigman\_62:

(Start: 36 @54465 has 299 MA's), (44, 54369), (45, 54360), (58, 54285), (65, 54213), (86, 54147), (88, 54141), (89, 54135), (94, 54108),

Gene: SilverBell\_62 Start: 54750, Stop: 54292, Start Num: 36

Candidate Starts for SilverBell\_62:

(Start: 36 @54750 has 299 MA's), (44, 54654), (45, 54645), (58, 54570), (65, 54498), (86, 54432), (88, 54426), (89, 54420), (94, 54393),

Gene: Simielle\_61 Start: 54469, Stop: 54011, Start Num: 36

Candidate Starts for Simielle\_61:

(Start: 36 @54469 has 299 MA's), (44, 54373), (45, 54364), (58, 54289), (65, 54217), (86, 54151), (88, 54145), (89, 54139), (94, 54112),

Gene: SirJeffery\_58 Start: 55185, Stop: 54502, Start Num: 31

Candidate Starts for SirJeffery\_58:

(21, 55311), (Start: 31 @55185 has 10 MA's), (41, 55143), (57, 54996), (59, 54963), (61, 54942), (64, 54924), (68, 54906), (109, 54759), (114, 54747), (115, 54738), (133, 54663),

Gene: Skippy\_62 Start: 54723, Stop: 54265, Start Num: 36

Candidate Starts for Skippy\_62:

(Start: 36 @54723 has 299 MA's), (44, 54627), (45, 54618), (58, 54543), (65, 54471), (86, 54405), (88, 54399), (89, 54393), (94, 54366),

Gene: Slatt\_62 Start: 54788, Stop: 54330, Start Num: 36

Candidate Starts for Slatt\_62:

(Start: 36 @54788 has 299 MA's), (44, 54692), (45, 54683), (58, 54608), (65, 54536), (86, 54470), (88, 54464), (89, 54458), (94, 54431),

Gene: SlippinJimmy\_64 Start: 56167, Stop: 55691, Start Num: 36

Candidate Starts for SlippinJimmy\_64:

(Start: 19 @56302 has 2 MA's), (22, 56281), (Start: 33 @56170 has 10 MA's), (Start: 36 @56167 has 299 MA's), (44, 56071), (58, 56005), (59, 55975), (70, 55903), (72, 55900), (73, 55891), (79, 55876), (92, 55819),

Gene: Soile\_62 Start: 55018, Stop: 54554, Start Num: 36

Candidate Starts for Soile\_62:

(Start: 36 @55018 has 299 MA's), (44, 54922), (45, 54913), (58, 54838), (65, 54766), (86, 54700), (88, 54694), (89, 54688), (94, 54661),

Gene: Solosis\_60 Start: 54484, Stop: 54026, Start Num: 36

Candidate Starts for Solosis\_60:

(Start: 36 @54484 has 299 MA's), (44, 54388), (45, 54379), (58, 54304), (65, 54232), (86, 54166), (88, 54160), (89, 54154), (94, 54127),

Gene: Sophia\_60 Start: 54478, Stop: 54020, Start Num: 36

Candidate Starts for Sophia\_60:

(Start: 36 @54478 has 299 MA's), (44, 54382), (45, 54373), (58, 54298), (65, 54226), (86, 54160), (88, 54154), (89, 54148), (94, 54121),

Gene: Soto\_60 Start: 54045, Stop: 53587, Start Num: 36

Candidate Starts for Soto\_60:

(Start: 36 @54045 has 299 MA's), (44, 53949), (45, 53940), (58, 53865), (65, 53793), (86, 53727), (88, 53721), (89, 53715), (94, 53688),

Gene: Spartan300\_61 Start: 54706, Stop: 54248, Start Num: 36

Candidate Starts for Spartan300\_61:

(Start: 36 @54706 has 299 MA's), (44, 54610), (45, 54601), (58, 54526), (65, 54454), (86, 54388), (88, 54382), (89, 54376), (94, 54349),

Gene: Squid\_61 Start: 54490, Stop: 54032, Start Num: 36

Candidate Starts for Squid\_61:

(Start: 36 @54490 has 299 MA's), (44, 54394), (45, 54385), (58, 54310), (65, 54238), (86, 54172), (88, 54166), (89, 54160), (94, 54133),

Gene: Squiggle\_62 Start: 54498, Stop: 54040, Start Num: 36

Candidate Starts for Squiggle\_62:

(Start: 36 @54498 has 299 MA's), (44, 54402), (45, 54393), (58, 54318), (65, 54246), (86, 54180), (88, 54174), (89, 54168), (94, 54141),

Gene: StinkyVeggy\_59 Start: 55230, Stop: 54595, Start Num: 31

Candidate Starts for StinkyVeggy\_59:

(Start: 31 @55230 has 10 MA's), (41, 55188), (57, 55041), (59, 55008), (60, 55002), (61, 54987), (64, 54969), (68, 54951), (78, 54912), (80, 54903), (84, 54894), (94, 54849), (100, 54819), (101, 54813),

Gene: Struggle\_62 Start: 54581, Stop: 54117, Start Num: 36

Candidate Starts for Struggle\_62:

(Start: 36 @54581 has 299 MA's), (44, 54485), (45, 54476), (58, 54401), (65, 54329), (86, 54263), (88, 54257), (89, 54251), (94, 54224),

Gene: Suffolk\_60 Start: 53993, Stop: 53535, Start Num: 36

Candidate Starts for Suffolk\_60:

(Start: 36 @53993 has 299 MA's), (44, 53897), (45, 53888), (58, 53813), (65, 53741), (86, 53675), (88, 53669), (89, 53663), (94, 53636),

Gene: Suigeneris\_60 Start: 55306, Stop: 54665, Start Num: 31

Candidate Starts for Suigeneris\_60:

(21, 55432), (Start: 31 @55306 has 10 MA's), (41, 55264), (57, 55117), (59, 55084), (61, 55063), (64, 55045), (68, 55027), (109, 54880), (114, 54868), (115, 54859), (133, 54796),

Gene: Surely\_61 Start: 54780, Stop: 54322, Start Num: 36

Candidate Starts for Surely\_61:

(Start: 36 @54780 has 299 MA's), (44, 54684), (45, 54675), (58, 54600), (65, 54528), (86, 54462), (88, 54456), (89, 54450), (94, 54423),

Gene: Swiphy\_65 Start: 55024, Stop: 54566, Start Num: 36

Candidate Starts for Swiphy\_65:

(Start: 36 @55024 has 299 MA's), (44, 54928), (45, 54919), (58, 54844), (65, 54772), (86, 54706), (88, 54700), (89, 54694), (94, 54667),

Gene: Swish\_63 Start: 54754, Stop: 54296, Start Num: 36

Candidate Starts for Swish\_63:

(Start: 36 @54754 has 299 MA's), (44, 54658), (45, 54649), (58, 54574), (65, 54502), (86, 54436), (88, 54430), (89, 54424), (94, 54397),

Gene: SynergyX\_62 Start: 55006, Stop: 54530, Start Num: 36

Candidate Starts for SynergyX\_62:

(Start: 19 @55141 has 2 MA's), (22, 55120), (Start: 33 @55009 has 10 MA's), (Start: 36 @55006 has 299 MA's), (44, 54910), (58, 54844), (59, 54814), (70, 54742), (72, 54739), (73, 54730), (79, 54715), (92, 54658),

Gene: TA17A\_59 Start: 53340, Stop: 52858, Start Num: 38

Candidate Starts for TA17A\_59:

(2, 53991), (4, 53865), (9, 53850), (Start: 38 @53340 has 31 MA's), (41, 53307), (44, 53247), (57, 53205), (58, 53202), (59, 53172), (64, 53133), (65, 53130), (66, 53127), (92, 53022), (93, 53016), (95, 52998), (105, 52965), (111, 52947), (125, 52902),

Gene: TallGrassMM\_61 Start: 54394, Stop: 53936, Start Num: 36

Candidate Starts for TallGrassMM\_61:

(Start: 36 @54394 has 299 MA's), (44, 54298), (45, 54289), (58, 54214), (65, 54142), (86, 54076), (88, 54070), (89, 54064), (94, 54037),

Gene: Telesworld\_59 Start: 54599, Stop: 54141, Start Num: 36

Candidate Starts for Telesworld\_59:

(Start: 36 @54599 has 299 MA's), (44, 54503), (45, 54494), (58, 54419), (65, 54347), (86, 54281), (88, 54275), (89, 54269), (94, 54242),

Gene: Thora\_61 Start: 54776, Stop: 54318, Start Num: 36

Candidate Starts for Thora\_61:

(Start: 36 @54776 has 299 MA's), (44, 54680), (45, 54671), (58, 54596), (65, 54524), (86, 54458), (88, 54452), (89, 54446), (94, 54419),

Gene: ThreeOh3D2\_63 Start: 54997, Stop: 54539, Start Num: 36

Candidate Starts for ThreeOh3D2\_63:

(Start: 36 @54997 has 299 MA's), (44, 54901), (45, 54892), (58, 54817), (65, 54745), (86, 54679), (88, 54673), (89, 54667), (94, 54640),

Gene: Thunderbird\_61 Start: 54736, Stop: 54272, Start Num: 36

Candidate Starts for Thunderbird\_61:

(Start: 36 @54736 has 299 MA's), (44, 54640), (45, 54631), (58, 54556), (65, 54484), (86, 54418), (88, 54412), (89, 54406), (94, 54379),

Gene: Timmi\_60 Start: 54479, Stop: 54021, Start Num: 36

Candidate Starts for Timmi\_60:

(Start: 36 @54479 has 299 MA's), (44, 54383), (45, 54374), (58, 54299), (65, 54227), (86, 54161), (88, 54155), (89, 54149), (94, 54122),

Gene: Tinciduntolum\_60 Start: 53502, Stop: 53014, Start Num: 38

Candidate Starts for Tinciduntolum\_60:

(Start: 38 @53502 has 31 MA's), (41, 53469), (44, 53409), (57, 53367), (58, 53364), (59, 53334), (64, 53295), (65, 53292), (66, 53289), (81, 53214), (92, 53175), (93, 53169), (95, 53151), (105, 53118), (111, 53100), (125, 53055),

Gene: TomBombadil\_61 Start: 54764, Stop: 54306, Start Num: 36

Candidate Starts for TomBombadil\_61:

(Start: 36 @54764 has 299 MA's), (44, 54668), (45, 54659), (58, 54584), (65, 54512), (86, 54446), (88, 54440), (89, 54434), (94, 54407),

Gene: Tomlarah\_62 Start: 55333, Stop: 54875, Start Num: 36

Candidate Starts for Tomlarah\_62:

(Start: 36 @55333 has 299 MA's), (44, 55237), (45, 55228), (58, 55153), (65, 55081), (86, 55015), (88, 55009), (89, 55003), (94, 54976),

Gene: Toni\_61 Start: 54926, Stop: 54468, Start Num: 36

Candidate Starts for Toni\_61:

(Start: 36 @54926 has 299 MA's), (44, 54830), (45, 54821), (58, 54746), (65, 54674), (86, 54608), (88, 54602), (89, 54596), (94, 54569),

Gene: Tooj\_60 Start: 54149, Stop: 53691, Start Num: 36

Candidate Starts for Tooj\_60:

(Start: 36 @54149 has 299 MA's), (44, 54053), (45, 54044), (58, 53969), (65, 53897), (86, 53831), (88, 53825), (89, 53819), (94, 53792),

Gene: Tres\_59 Start: 53356, Stop: 52868, Start Num: 38

Candidate Starts for Tres\_59:

(Start: 38 @53356 has 31 MA's), (41, 53323), (44, 53263), (57, 53221), (58, 53218), (59, 53188), (64, 53149), (65, 53146), (66, 53143), (81, 53068), (92, 53029), (93, 53023), (95, 53005), (105, 52972), (111, 52954), (125, 52909),

Gene: True\_60 Start: 54489, Stop: 54031, Start Num: 36

Candidate Starts for True\_60:

(Start: 36 @54489 has 299 MA's), (44, 54393), (45, 54384), (58, 54309), (65, 54237), (86, 54171), (88, 54165), (89, 54159), (94, 54132),

Gene: Trypo\_64 Start: 55161, Stop: 54703, Start Num: 36

Candidate Starts for Trypo\_64:

(Start: 36 @55161 has 299 MA's), (44, 55065), (45, 55056), (58, 54981), (65, 54909), (86, 54843), (88, 54837), (89, 54831), (94, 54804),

Gene: Tydolla\_59 Start: 55039, Stop: 54590, Start Num: 36

Candidate Starts for Tydolla\_59:

(Start: 19 @55174 has 2 MA's), (22, 55153), (Start: 33 @55042 has 10 MA's), (Start: 36 @55039 has 299 MA's), (44, 54943), (58, 54877), (59, 54847), (70, 54775), (72, 54772), (73, 54763), (79, 54748), (92, 54715),

Gene: TyrionL\_62 Start: 54586, Stop: 54128, Start Num: 36

Candidate Starts for TyrionL\_62:

(Start: 36 @54586 has 299 MA's), (44, 54490), (45, 54481), (58, 54406), (65, 54334), (86, 54268), (88, 54262), (89, 54256), (94, 54229),

Gene: UAch1\_61 Start: 54720, Stop: 54262, Start Num: 36

Candidate Starts for UAch1\_61:

(Start: 36 @54720 has 299 MA's), (44, 54624), (45, 54615), (58, 54540), (65, 54468), (86, 54402), (88, 54396), (89, 54390), (94, 54363),

Gene: UncleHowie\_60 Start: 54191, Stop: 53733, Start Num: 36

Candidate Starts for UncleHowie\_60:

(Start: 36 @54191 has 299 MA's), (44, 54095), (45, 54086), (58, 54011), (65, 53939), (86, 53873), (88, 53867), (89, 53861), (94, 53834),

Gene: Usavi\_61 Start: 54859, Stop: 54401, Start Num: 36

Candidate Starts for Usavi\_61:

(Start: 36 @54859 has 299 MA's), (44, 54763), (45, 54754), (58, 54679), (65, 54607), (86, 54541), (88, 54535), (89, 54529), (94, 54502),

Gene: Vaishali24\_60 Start: 54394, Stop: 53936, Start Num: 36

Candidate Starts for Vaishali24\_60:

(Start: 36 @54394 has 299 MA's), (44, 54298), (45, 54289), (58, 54214), (65, 54142), (86, 54076), (88, 54070), (89, 54064), (94, 54037), (116, 53968),

Gene: Valjean\_61 Start: 54716, Stop: 54258, Start Num: 36

Candidate Starts for Valjean\_61:

(Start: 36 @54716 has 299 MA's), (44, 54620), (45, 54611), (58, 54536), (65, 54464), (86, 54398), (88, 54392), (89, 54386), (94, 54359),

Gene: Vaticameos\_58 Start: 53024, Stop: 52566, Start Num: 36

Candidate Starts for Vaticameos\_58:

(Start: 36 @53024 has 299 MA's), (44, 52928), (45, 52919), (58, 52844), (65, 52772), (86, 52706), (88, 52700), (89, 52694), (94, 52667),

Gene: Veritas\_63 Start: 54854, Stop: 54396, Start Num: 36

Candidate Starts for Veritas\_63:

(Start: 36 @54854 has 299 MA's), (44, 54758), (45, 54749), (58, 54674), (65, 54602), (86, 54536), (88, 54530), (89, 54524), (94, 54497),

Gene: Vic9\_60 Start: 54201, Stop: 53710, Start Num: 38

Candidate Starts for Vic9\_60:

(Start: 38 @54201 has 31 MA's), (41, 54168), (44, 54108), (57, 54066), (58, 54063), (59, 54033), (64, 53994), (65, 53991), (66, 53988), (81, 53913), (92, 53874), (93, 53868), (95, 53850), (105, 53817), (111, 53799), (125, 53754),

Gene: Virapocalypse\_62 Start: 54815, Stop: 54357, Start Num: 36

Candidate Starts for Virapocalypse\_62:

(Start: 36 @54815 has 299 MA's), (44, 54719), (45, 54710), (58, 54635), (65, 54563), (86, 54497), (88, 54491), (89, 54485), (94, 54458),

Gene: Virgeve\_61 Start: 54452, Stop: 53994, Start Num: 36

Candidate Starts for Virgeve\_61:

(Start: 36 @54452 has 299 MA's), (44, 54356), (45, 54347), (58, 54272), (65, 54200), (86, 54134), (88, 54128), (89, 54122), (94, 54095),

Gene: Vista\_61 Start: 54492, Stop: 54034, Start Num: 36

Candidate Starts for Vista\_61:

(Start: 36 @54492 has 299 MA's), (44, 54396), (45, 54387), (58, 54312), (65, 54240), (86, 54174), (88, 54168), (89, 54162), (94, 54135),

Gene: Vivaldi\_63 Start: 54950, Stop: 54492, Start Num: 36

Candidate Starts for Vivaldi\_63:

(Start: 36 @54950 has 299 MA's), (44, 54854), (45, 54845), (58, 54770), (65, 54698), (86, 54632), (88, 54626), (89, 54620), (94, 54593),

Gene: Vortex\_61 Start: 54474, Stop: 54016, Start Num: 36

Candidate Starts for Vortex\_61:

(Start: 36 @54474 has 299 MA's), (44, 54378), (45, 54369), (58, 54294), (65, 54222), (86, 54156), (88, 54150), (89, 54144), (94, 54117),

Gene: Wallhey\_62 Start: 54596, Stop: 54132, Start Num: 36

Candidate Starts for Wallhey\_62:

(Start: 36 @54596 has 299 MA's), (44, 54500), (45, 54491), (58, 54416), (65, 54344), (86, 54278), (88, 54272), (89, 54266), (94, 54239),

Gene: Waterdiva\_61 Start: 54853, Stop: 54395, Start Num: 36

Candidate Starts for Waterdiva\_61:

(Start: 36 @54853 has 299 MA's), (44, 54757), (45, 54748), (58, 54673), (65, 54601), (86, 54535), (88, 54529), (89, 54523), (94, 54496),

Gene: Weher20\_61 Start: 55296, Stop: 54838, Start Num: 36

Candidate Starts for Weher20\_61:

(Start: 36 @55296 has 299 MA's), (44, 55200), (45, 55191), (58, 55116), (65, 55044), (86, 54978), (88, 54972), (89, 54966), (94, 54939),

Gene: West99\_59 Start: 53499, Stop: 53011, Start Num: 38

Candidate Starts for West99\_59:

(27, 53601), (Start: 38 @53499 has 31 MA's), (41, 53466), (44, 53406), (57, 53364), (58, 53361), (59, 53331), (64, 53292), (65, 53289), (66, 53286), (81, 53211), (92, 53172), (93, 53166), (95, 53148), (105, 53115), (111, 53097), (125, 53052),

Gene: Windsor\_61 Start: 55039, Stop: 54581, Start Num: 36

Candidate Starts for Windsor\_61:

(Start: 36 @55039 has 299 MA's), (44, 54943), (45, 54934), (58, 54859), (65, 54787), (86, 54721), (88, 54715), (89, 54709), (94, 54682),

Gene: Xavier\_60 Start: 54481, Stop: 54023, Start Num: 36

Candidate Starts for Xavier\_60:

(Start: 36 @54481 has 299 MA's), (44, 54385), (45, 54376), (58, 54301), (65, 54229), (86, 54163), (88, 54157), (89, 54151), (94, 54124),

Gene: Yahalom\_60 Start: 54813, Stop: 54364, Start Num: 36

Candidate Starts for Yahalom\_60:

(10, 55206), (11, 55080), (12, 55062), (Start: 19 @54948 has 2 MA's), (22, 54927), (Start: 33 @54816 has 10 MA's), (Start: 36 @54813 has 299 MA's), (44, 54717), (58, 54651), (59, 54621), (65, 54579), (70, 54549), (72, 54546), (73, 54537), (79, 54522), (92, 54489),

Gene: Yinz\_62 Start: 54877, Stop: 54386, Start Num: 33

Candidate Starts for Yinz\_62:



(Start: 33 @54877 has 10 MA's), (Start: 36 @54874 has 299 MA's), (44, 54778), (58, 54712), (59, 54682), (70, 54610), (72, 54607), (73, 54598), (79, 54583), (92, 54526),

Gene: Yoshand\_63 Start: 54767, Stop: 54309, Start Num: 36

Candidate Starts for Yoshand\_63:

(Start: 36 @54767 has 299 MA's), (44, 54671), (45, 54662), (58, 54587), (65, 54515), (86, 54449), (88, 54443), (89, 54437), (94, 54410),

Gene: YouGoGlencoco\_62 Start: 54719, Stop: 54261, Start Num: 36

Candidate Starts for YouGoGlencoco\_62:

(Start: 36 @54719 has 299 MA's), (44, 54623), (45, 54614), (58, 54539), (65, 54467), (86, 54401), (88, 54395), (89, 54389), (94, 54362),

Gene: Zaider\_62 Start: 54960, Stop: 54502, Start Num: 36

Candidate Starts for Zaider\_62:

(Start: 36 @54960 has 299 MA's), (44, 54864), (45, 54855), (58, 54780), (65, 54708), (86, 54642), (88, 54636), (89, 54630), (94, 54603),

Gene: Zelda\_62 Start: 55121, Stop: 54663, Start Num: 36

Candidate Starts for Zelda\_62:

(Start: 36 @55121 has 299 MA's), (44, 55025), (45, 55016), (58, 54941), (65, 54869), (86, 54803), (88, 54797), (89, 54791), (94, 54764),

Gene: Zenteno07\_64 Start: 54876, Stop: 54409, Start Num: 36

Candidate Starts for Zenteno07\_64:

(3, 55491), (8, 55386), (20, 55005), (Start: 36 @54876 has 299 MA's), (59, 54678), (62, 54645), (65, 54636), (96, 54504),

Gene: Zonia\_63 Start: 55047, Stop: 54583, Start Num: 36

Candidate Starts for Zonia\_63:

(Start: 36 @55047 has 299 MA's), (44, 54951), (45, 54942), (58, 54867), (65, 54795), (86, 54729), (88, 54723), (89, 54717), (94, 54690),