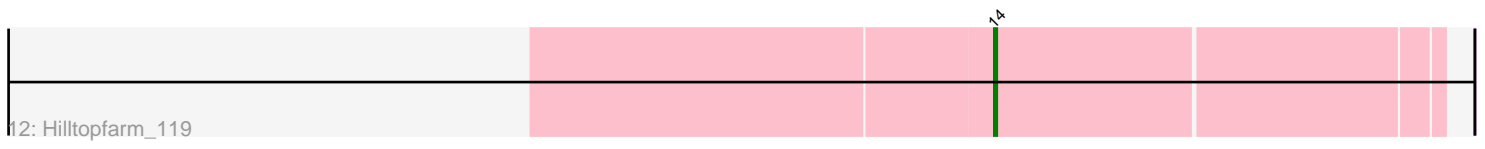
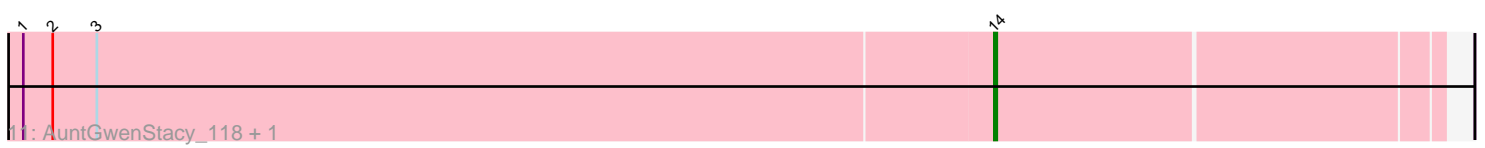
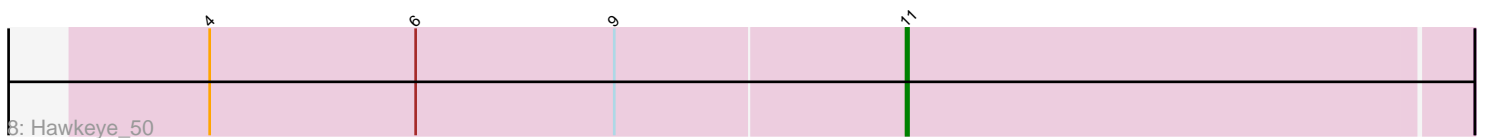
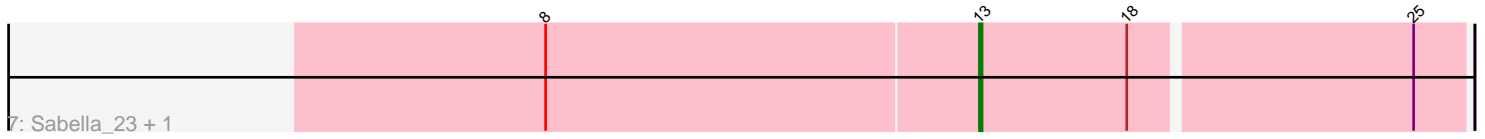
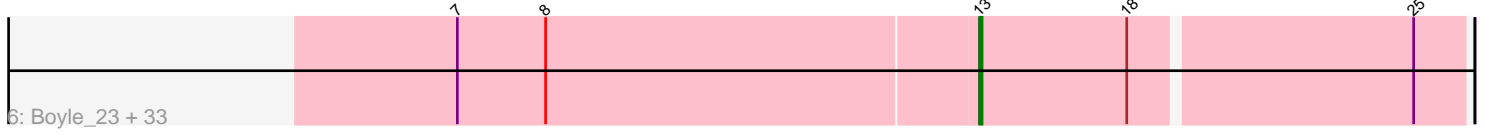
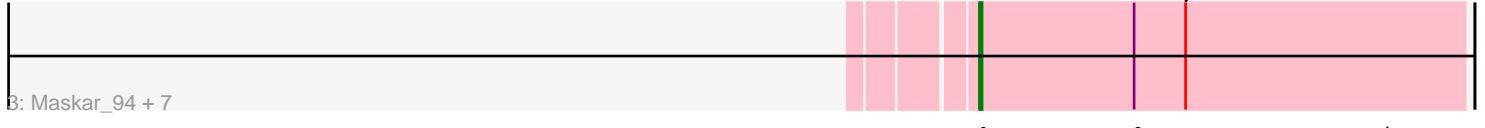
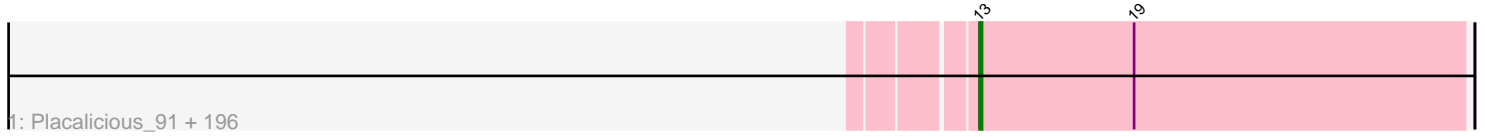


Pham 197781



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 197781 Report

This analysis was run 01/18/25 on database version 583.

Pham number 197781 has 332 members, 25 are drafts.

Phages represented in each track:

- Track 1 : Placalicious\_91, JacAttac\_93, Craff\_94, Carthage\_94, UAch1\_94, Altwerkus\_90, Sigman\_92, SassyCat97\_91, Phipps\_91, Struggle\_93, Dingo\_90, MitKao\_93, Fringe\_97, Thunderbird\_93, Phergie\_93, AngelCake\_89, Zaider\_94, Eugenia\_95, Mutante\_94, Held\_91, Anderson\_94, Wallhey\_94, Cornobble\_91, Fang\_94, Gwennie1\_90, TallGrassMM\_92, Inchworm\_94, JangoPhett\_91, Bishoperium\_93, Vaishali24\_94, Lulumae\_88, Numberten\_93, Oosterbaan\_93, Gwilliam\_93, Yoshand\_94, Badfish\_93, Gyarad\_0092, Khan1\_93, Olive\_89, Chorkpop\_94, SDcharge11\_92, Caspiroi\_94, Nacho\_0096, Hertubise\_92, Toni\_92, Gareth\_104, FugateOSU\_93, Doddsville\_90, Quisquilliae\_95, Dione\_91, GeneCoco\_93, Phareon\_90, Waterdiva\_94, Haimas\_90, FluffyNinja\_94, Surely\_93, Nicole21\_94, Weher20\_90, BatteryCK\_91, Daffy\_92, Childish\_93, Pipsqueak\_90, Haleema\_92, Keitherie\_96, Antonia\_92, Beaglebox\_89, Fozzie\_90, Zelda\_93, Robyn\_95, Simielle\_93, Bluephacebaby\_92, OSmaximus\_94, JDog\_92, Tomlarah\_93, Legolas\_94, Murdoc\_89, Kimbrough\_94, LemonSlice\_93, Phunky\_90, Dati\_90, Jillium\_94, Timmi\_91, BlackStallion\_92, Piglet\_0092, Cher\_93, PhenghisKhan\_93, Samaymay\_93, Squid\_92, UncleHowie\_89, CamL\_93, Buckeye\_92, MiniBoss\_89, LuckyMarjie\_90, Jesabah\_92, MrPhizzler\_92, Scoot17C\_93, Jiminy\_93, MRabcd\_93, Thora\_91, Apizium\_91, DaddyDaniels\_96, Plmatters\_90, Chute\_93, HighStump\_95, LostAndPhound\_92, Nathan\_93, Virapocalypse\_94, Vivaldi\_93, Lopsy\_89, Sophia\_91, Coletti\_95, Kahve\_93, Mana\_90, Hamish\_90, Magic8\_92, Phamished\_92, Morgushi\_90, KlimbOn\_92, Mikota\_88, Morty\_93, QueenBeane\_93, ABU\_91, Orion\_91, Dice\_93, Cobra\_93, Freya\_89, PhrodoBaggins\_95, FriarPreacher\_90, ProfessorX\_91, Soile\_94, LasagnaCat\_94, Lasso\_92, Serpentine\_0095, JakeO\_94, Hartsy\_91, Melc17\_90, SilverBell\_94, Duggie\_93, Cannibal\_93, Chah\_95, Hetaeria\_93, Maru\_93, Roy17\_90, KingTut\_84, Mesmerelda\_94, Kloppinator\_93, Iridoclysis\_92, Vaticameos\_90, Skippy\_93, DoesntMatter\_90, Xavier\_92, Lulwa\_90, Trypo\_93, OliverWalter\_92, Telesworld\_91, Vista\_92, LeiMonet\_95, PhatLouie\_95, Mulan\_92, Etaye\_92, Mosaic\_90, Matalotodo\_91, Emiris\_95, Katniss\_95, Veritas\_92, Pherdinand\_94, Mesh1\_94, PG1\_91, Ricotta\_94, Vortex\_91, ElvisPhasley\_99, ShiVal\_92, Cosmolli16\_95, PhrankReynolds\_91, Suffolk\_89, Virgeve\_91, Nyala\_93, Iridessa\_95, Puhltonio\_89, Grand2040\_91, Giraffe\_94, HenryJackson\_93, Omniscient\_94, LeeLot\_91, Aelin\_92, Squiggle\_92, PinheadLarry\_92, RedMaple\_92, Serendipity\_92, Valjean\_91, ThreeOh3D2\_94, Solosis\_91, YouGoGlencoco\_93, Potter\_87, Gophee\_92, TomBombadil\_93, Swiphy\_97
- Track 2 : Lego3393\_91, CampRoach\_93, Durga\_95, Kailash\_91, Chunky\_92, HSavage\_91, KingVeVeVe\_91, Boehler\_91, Colbert\_91, Newman\_89, Phleuron\_90,

Schadenfreude\_93, Derpp\_92, Oline\_92, Orfeu\_93, Inverness\_91, Pops\_90, Jiraiya\_98, CharlieGBrown\_91, Banjo\_89, Podrick\_91, Kikipoo\_95, Basato\_92, DuchessDung\_90, Manad\_92, Soto\_90, Daka\_95, Roliet\_90, CheetO\_90, Frankicide\_91, Mag7\_91, Rimu\_96, Riggan\_94, Swish\_94, EmpTee\_92, Sheila\_87, KLucky39\_91, Spartan300\_92, Eremos\_91, Adriana\_94, Zonia\_93, BlueHusk\_94, Megatron\_94, Roscoe\_92, Lumine\_94, Prickles\_94, Crownjwl\_90, Horchata\_88, MichaelPhcott\_91, Hocus\_92, PhatCats2014\_92, Harvey\_90, Labeouficaum\_93, Schueller\_92, Mecca\_93, Brilliant\_96, Usavi\_93, AltPhacts\_90, AbsoluteMadLad\_91, Pinkman\_92, IsaacEli\_95, TyrionL\_93

- Track 3 : Maskar\_94, MelsMeow\_92, Kwksand96\_94, Ashraf\_94, Chaelin\_94, Longacauda\_94, IntiyazSitla\_94, Windsor\_93
- Track 4 : Kwadwo\_92
- Track 5 : Imvubu\_89
- Track 6 : Boyle\_23, Eaglehorse\_23, Faze9\_23, Coffee\_23, Arbiter\_23, Brownie5\_23, Laurie\_23, Allegro\_23, Kheth\_23, Hedgerow\_23, Holeinone\_23, TA17A\_23, Kaleb\_23, Kolhan\_23, Phantasmagoria\_23, MasterPo\_23, LilSmirk\_23, Glass\_23, Vic9\_24, West99\_23, Blocker23\_23, ItsyBitsy1\_23, Ares\_23, Tres\_23, Opia\_23, Calamitous\_23, LizLemon\_23, Lars\_23, Godines\_23, Lephleur\_23, Tinciduntolum\_24, Rhinoforte\_23, Bananafish\_23, FrenchFry\_23
- Track 7 : Sabella\_23, Qyrzula\_21
- Track 8 : Hawkeye\_50
- Track 9 : Rey\_173
- Track 10 : Hail\_4, Forge\_4, Daegal\_5, Wishmaker\_4, Ubuntu\_4, Amymech\_4, Giles\_4, Dewey\_4, Luke\_4, Hadrien\_4, LilHazelnut\_4, Gancho\_3, Kinbote\_4, HH92\_4, OBUpride\_4, DeepSoil15\_4, Webster2\_4, Ein37\_4, Gravallia\_4, Luna22\_4, Evanesce\_4, Amochick\_4
- Track 11 : AuntGwenStacy\_118, Typha\_116
- Track 12 : Hilltopfarm\_119

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

The start number called the most often in the published annotations is 13, it was called in 280 of the 307 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- ABU\_91, AbsoluteMadLad\_91, Adriana\_94, Aelin\_92, Allegro\_23, AltPhacts\_90, Altwerkus\_90, Anderson\_94, AngelCake\_89, Antonia\_92, Apizium\_91, Arbiter\_23, Ares\_23, Ashraf\_94, Badfish\_93, Bananafish\_23, Banjo\_89, Basato\_92, BatteryCK\_91, Beaglebox\_89, Bishoperium\_93, BlackStallion\_92, Blocker23\_23, BlueHusk\_94, Bluephacebaby\_92, Bohler\_91, Boyle\_23, Brilliant\_96, Brownie5\_23, Buckeye\_92, Calamitous\_23, CamL\_93, CampRoach\_93, Cannibal\_93, Carthage\_94, Caspiboi\_94, Chaelin\_94, Chah\_95, CharlieGBrown\_91, CheetO\_90, Cher\_93, Childish\_93, Chorkpop\_94, Chunky\_92, Chute\_93, Cobra\_93, Coffee\_23, Colbert\_91, Coletti\_95, Cornobble\_91, Cosmolli16\_95, Craff\_94, Crownjwl\_90, DaddyDaniels\_96, Daffy\_92, Daka\_95, Dati\_90, Derpp\_92, Dice\_93, Dingo\_90, Dione\_91, Doddsville\_90, DoesntMatter\_90, DuchessDung\_90, Duggie\_93, Durga\_95, Eaglehorse\_23, ElvisPhasley\_99, Emiris\_95, EmpTee\_92, Eremos\_91, Etaye\_92, Eugenia\_95, Fang\_94, Faze9\_23, FluffyNinja\_94, Fozzie\_90, Frankicide\_91, FrenchFry\_23, Freya\_89, FriarPreacher\_90, Fringe\_97, FugateOSU\_93, Gareth\_104, GeneCoco\_93, Giraffe\_94, Glass\_23, Godines\_23,

Gophee\_92, Grand2040\_91, Gwennie1\_90, Gwilliam\_93, Gyarad\_0092, HSavage\_91, Haimas\_90, Haleema\_92, Hamish\_90, Hartsy\_91, Harvey\_90, Hedgerow\_23, Held\_91, HenryJackson\_93, Hertubise\_92, Hetaeria\_93, HighStump\_95, Hocus\_92, Holeinone\_23, Horchata\_88, ImtiyazSittla\_94, Inchworm\_94, Inverness\_91, Iridessa\_95, Iridoclysis\_92, IsaacEli\_95, ItsyBitsy1\_23, JDog\_92, JacAttac\_93, JakeO\_94, JangoPhett\_91, Jesabah\_92, Jillium\_94, Jiminy\_93, Jiraiya\_98, KLucky39\_91, Kahve\_93, Kailash\_91, Kaleb\_23, Katniss\_95, Keitherie\_96, Khan1\_93, Kheth\_23, Kikipoo\_95, Kimbrough\_94, KingTut\_84, KingVeVeVe\_91, KlimbOn\_92, Kloppinator\_93, Kolhan\_23, Kwadwo\_92, Kwksand96\_94, Labeouficaum\_93, Lars\_23, LasagnaCat\_94, Lasso\_92, Laurie\_23, LeeLot\_91, Lego3393\_91, Legolas\_94, LeiMonet\_95, LemonSlice\_93, Lephleur\_23, LilSmirk\_23, LizLemon\_23, Longacauda\_94, Lopsy\_89, LostAndPhound\_92, LuckyMarjie\_90, Lulumae\_88, Lulwa\_90, Lumine\_94, MRabcd\_93, Mag7\_91, Magic8\_92, Mana\_90, Manad\_92, Maru\_93, Maskar\_94, MasterPo\_23, Matalotodo\_91, Mecca\_93, Megatron\_94, Melc17\_90, MelsMeow\_92, Mesh1\_94, Mesmerelda\_94, MichaelPhcott\_91, Mikota\_88, MiniBoss\_89, MitKao\_93, Morgushi\_90, Morty\_93, Mosaic\_90, MrPhizzler\_92, Mulan\_92, Murdoc\_89, Mutante\_94, Nacho\_0096, Nathan\_93, Newman\_89, Nicole21\_94, Numberten\_93, Nyala\_93, OSmaximus\_94, Oline\_92, Olive\_89, OliverWalter\_92, Omniscient\_94, Oosterbaan\_93, Opia\_23, Orfeu\_93, Orion\_91, PG1\_91, Phamished\_92, Phantasmagoria\_23, Phareon\_90, PhatCats2014\_92, PhatLouie\_95, PhenghisKhan\_93, Pherdinand\_94, Phergie\_93, Phipps\_91, Phleuron\_90, PhrankReynolds\_91, PhrodoBaggins\_95, Phunky\_90, Piglet\_0092, PinheadLarry\_92, Pinkman\_92, Pipsqueak\_90, Placalicious\_91, Plmatters\_90, Podrick\_91, Pops\_90, Potter\_87, Prickles\_94, ProfessorX\_91, Puhltonio\_89, QueenBeane\_93, Quisquiliae\_95, Qyrzula\_21, RedMaple\_92, Rhinoforte\_23, Ricotta\_94, Riggan\_94, Rimu\_96, Robyn\_95, Roliet\_90, Roscoe\_92, Roy17\_90, SDcharge11\_92, Sabella\_23, Samaymay\_93, SassyCat97\_91, Schadenfreude\_93, Schueller\_92, Scoot17C\_93, Serendipity\_92, Serpentine\_0095, Sheila\_87, ShiVal\_92, Sigman\_92, SilverBell\_94, Simielle\_93, Skippy\_93, Soile\_94, Solosis\_91, Sophia\_91, Soto\_90, Spartan300\_92, Squid\_92, Squiggle\_92, Struggle\_93, Suffolk\_89, Surely\_93, Swiphy\_97, Swish\_94, TA17A\_23, TallGrassMM\_92, Telesworld\_91, Thora\_91, ThreeOh3D2\_94, Thunderbird\_93, Timmi\_91, Tinciduntolum\_24, TomBombadil\_93, Tomlarah\_93, Toni\_92, Tres\_23, Trypo\_93, TyrionL\_93, UAch1\_94, UncleHowie\_89, Usavi\_93, Vaishali24\_94, Valjean\_91, Vaticameos\_90, Veritas\_92, Vic9\_24, Virapocalypse\_94, Virgeve\_91, Vista\_92, Vivaldi\_93, Vortex\_91, Wallhey\_94, Waterdiva\_94, Weher20\_90, West99\_23, Windsor\_93, Xavier\_92, Yoshand\_94, YouGoGlencoco\_93, Zaider\_94, Zelda\_93, Zonia\_93,

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

- 

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

- Amochick\_4, Amymech\_4, AuntGwenStacy\_118, Daegal\_5, DeepSoil15\_4, Dewey\_4, Ein37\_4, Evanesce\_4, Forge\_4, Gancho\_3, Giles\_4, Gravallia\_4, HH92\_4, Hadrien\_4, Hail\_4, Hawkeye\_50, Hilltopfarm\_119, Imvubu\_89, Kinbote\_4, LilHazelnut\_4, Luke\_4, Luna22\_4, OBUpride\_4, Rey\_173, Typha\_116, Ubuntu\_4, Webster2\_4, Wishmaker\_4,

### Summary by start number:

Start 11:

- Found in 2 of 332 ( 0.6% ) of genes in pham

- Manual Annotations of this start: 2 of 307
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Hawkeye\_50 (D2), Imvubu\_89 (B10),

#### Start 12:

- Found in 22 of 332 ( 6.6% ) of genes in pham
- Manual Annotations of this start: 22 of 307
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Amochick\_4 (Q), Amymech\_4 (Q), Daegal\_5 (Q), DeepSoil15\_4 (Q), Dewey\_4 (Q), Ein37\_4 (Q), Evanesce\_4 (Q), Forge\_4 (Q), Gancho\_3 (Q), Giles\_4 (Q), Gravaillia\_4 (Q), HH92\_4 (Q), Hadrien\_4 (Q), Hail\_4 (Q), Kinbote\_4 (Q), LilHazelNut\_4 (Q), Luke\_4 (Q), Luna22\_4 (Q), OBUpride\_4 (Q), Ubuntu\_4 (Q), Webster2\_4 (Q), Wishmaker\_4 (Q),

#### Start 13:

- Found in 304 of 332 ( 91.6% ) of genes in pham
- Manual Annotations of this start: 280 of 307
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ABU\_91 (B1), AbsoluteMadLad\_91 (B1), Adriana\_94 (B1), Aelin\_92 (B1), Allegro\_23 (B2), AltPhacts\_90 (B1), Altwerkus\_90 (B1), Anderson\_94 (B1), AngelCake\_89 (B1), Antonia\_92 (B1), Apizium\_91 (B1), Arbiter\_23 (B2), Ares\_23 (B2), Ashraf\_94 (B1), Badfish\_93 (B1), Bananafish\_23 (B2), Banjo\_89 (B1), Basato\_92 (B1), BatteryCK\_91 (B1), Beaglebox\_89 (B1), Bishoperium\_93 (B1), BlackStallion\_92 (B1), Blocker23\_23 (B2), BlueHusk\_94 (B1), Bluephacebaby\_92 (B1), Boehler\_91 (B1), Boyle\_23 (B2), Brilliant\_96 (B1), Brownie5\_23 (B2), Buckeye\_92 (B1), Calamitous\_23 (B2), CamL\_93 (B1), CampRoach\_93 (B1), Cannibal\_93 (B1), Carthage\_94 (B1), Caspiroi\_94 (B1), Chaelin\_94 (B1), Chah\_95 (B1), CharlieGBrown\_91 (B1), CheetO\_90 (B1), Cher\_93 (B1), Childish\_93 (B1), Chorkpop\_94 (B1), Chunky\_92 (B1), Chute\_93 (B1), Cobra\_93 (B1), Coffee\_23 (B2), Colbert\_91 (B1), Coletti\_95 (B1), Cornobble\_91 (B1), Cosmolli16\_95 (B1), Craff\_94 (B1), Crownjwl\_90 (B1), DaddyDaniels\_96 (B1), Daffy\_92 (B1), Daka\_95 (B1), Dati\_90 (B1), Derpp\_92 (B1), Dice\_93 (B1), Dingo\_90 (B1), Dione\_91 (B1), Doddsville\_90 (B1), DoesntMatter\_90 (B1), DuchessDung\_90 (B1), Duggie\_93 (B1), Durga\_95 (B1), Eaglehorse\_23 (B2), ElvisPhasley\_99 (B1), Emiris\_95 (B1), EmpTee\_92 (B1), Eremos\_91 (B1), Etaye\_92 (B1), Eugenia\_95 (B1), Fang\_94 (B1), Faze9\_23 (B2), FluffyNinja\_94 (B1), Fozzie\_90 (B1), Frankicide\_91 (B1), FrenchFry\_23 (B2), Freya\_89 (B1), FriarPreacher\_90 (B1), Fringe\_97 (B1), FugateOSU\_93 (B1), Gareth\_104 (B1), GeneCoco\_93 (B1), Giraffe\_94 (B1), Glass\_23 (B2), Godines\_23 (B2), Gophee\_92 (B1), Grand2040\_91 (B1), Gwennie1\_90 (B1), Gwilliam\_93 (B1), Gyarad\_0092 (B1), HSavage\_91 (B1), Haimas\_90 (B1), Haleema\_92 (B1), Hamish\_90 (B1), Hartsy\_91 (B1), Harvey\_90 (B1), Hedgerow\_23 (B2), Held\_91 (B1), HenryJackson\_93 (B1), Hertubise\_92 (B1), Hetaeria\_93 (B1), HighStump\_95 (B1), Hocus\_92 (B1), Holeinone\_23 (B2), Horchata\_88 (B1), ImtiyazSitla\_94 (B1), Inchworm\_94 (B1), Inverness\_91 (B1), Iridessa\_95 (B1), Iridoclysis\_92 (B1), IsaacEli\_95 (B1), ItsyBitsy1\_23 (B2), JDog\_92 (B1), JacAttac\_93 (B1), JakeO\_94 (B1), JangoPhett\_91 (B1), Jesabah\_92 (B1), Jillium\_94 (B1), Jiminy\_93 (B1), Jiraiya\_98 (B1), KLucky39\_91 (B1), Kahve\_93 (B1), Kailash\_91 (B1), Kaleb\_23 (B2), Katniss\_95 (B1), Keitherie\_96 (B1), Khan1\_93 (B1), Kheth\_23 (B2), Kikipoo\_95 (B1), Kimbrough\_94 (B1), KingTut\_84 (B1), KingVeVeVe\_91 (B1), KlimbOn\_92 (B1), Kloppinator\_93 (B1), Kolhan\_23 (B2), Kwadwo\_92 (B1), Kwksand96\_94 (B1), Labeouficaum\_93 (B1), Lars\_23 (B2), LasagnaCat\_94 (B1), Lasso\_92 (B1), Laurie\_23 (B2), LeeLot\_91 (B1), Lego3393\_91 (B1), Legolas\_94 (B1), LeiMonet\_95 (B1), LemonSlice\_93 (B1), Lephleur\_23 (B2),

LilSmirk\_23 (B2), LizLemon\_23 (B2), Longacauda\_94 (B1), Lopsy\_89 (B1), LostAndPhound\_92 (B1), LuckyMarjie\_90 (B1), Lulumae\_88 (B1), Lulwa\_90 (B1), Lumine\_94 (B1), MRabcd\_93 (B1), Mag7\_91 (B1), Magic8\_92 (B1), Mana\_90 (B1), Manad\_92 (B1), Maru\_93 (B1), Maskar\_94 (B1), MasterPo\_23 (B2), Matalotodo\_91 (B1), Mecca\_93 (B1), Megatron\_94 (B1), Melc17\_90 (B1), MelsMeow\_92 (B1), Mesh1\_94 (B1), Mesmerelda\_94 (B1), MichaelPhcott\_91 (B1), Mikota\_88 (B1), MiniBoss\_89 (B1), MitKao\_93 (B1), Morgushi\_90 (B1), Morty\_93 (B1), Mosaic\_90 (B1), MrPhizzler\_92 (B1), Mulan\_92 (B1), Murdoc\_89 (B1), Mutante\_94 (B1), Nacho\_0096 (B1), Nathan\_93 (B1), Newman\_89 (B1), Nicole21\_94 (B1), Numberten\_93 (B1), Nyala\_93 (B1), OSmaximus\_94 (B1), Oline\_92 (B1), Olive\_89 (B1), OliverWalter\_92 (B1), Omniscient\_94 (B1), Oosterbaan\_93 (B1), Opia\_23 (B2), Orfeu\_93 (B1), Orion\_91 (B1), PG1\_91 (B1), Phamished\_92 (B1), Phantasmagoria\_23 (B2), Phareon\_90 (B1), PhatCats2014\_92 (B1), PhatLouie\_95 (B1), PhenghisKhan\_93 (B1), Pherdinand\_94 (B1), Phergie\_93 (B1), Phipps\_91 (B1), Phleuron\_90 (B1), PhrankReynolds\_91 (B1), PhrodoBaggins\_95 (B1), Phunky\_90 (B1), Piglet\_0092 (B1), PinheadLarry\_92 (B1), Pinkman\_92 (B1), Pipsqueak\_90 (B1), Placalicious\_91 (B1), Plmatters\_90 (B1), Podrick\_91 (B1), Pops\_90 (B1), Potter\_87 (B1), Prickles\_94 (B1), ProfessorX\_91 (B1), Puhltonio\_89 (B1), QueenBeane\_93 (B1), Quisquilliae\_95 (B1), Qyrzula\_21 (B2), RedMaple\_92 (B1), Rhinoforte\_23 (B2), Ricotta\_94 (B1), Riggan\_94 (B1), Rimu\_96 (B1), Robyn\_95 (B1), Roliet\_90 (B1), Roscoe\_92 (B1), Roy17\_90 (B1), SDcharge11\_92 (B1), Sabella\_23 (B2), Samaymay\_93 (B1), SassyCat97\_91 (B1), Schadenfreude\_93 (B1), Schueller\_92 (B1), Scoot17C\_93 (B1), Serendipity\_92 (B1), Serpentine\_0095 (B1), Sheila\_87 (B1), ShiVal\_92 (B1), Sigman\_92 (B1), SilverBell\_94 (B1), Simielle\_93 (B1), Skippy\_93 (B1), Soile\_94 (B1), Solosis\_91 (B1), Sophia\_91 (B1), Soto\_90 (B1), Spartan300\_92 (B1), Squid\_92 (B1), Squiggle\_92 (B1), Struggle\_93 (B1), Suffolk\_89 (B1), Surely\_93 (B1), Swiphy\_97 (B1), Swish\_94 (B1), TA17A\_23 (B2), TallGrassMM\_92 (B1), Telesworld\_91 (B1), Thora\_91 (B1), ThreeOh3D2\_94 (B1), Thunderbird\_93 (B1), Timmi\_91 (B1), Tinciduntolum\_24 (B2), TomBombadil\_93 (B1), Tomlarah\_93 (B1), Toni\_92 (B1), Tres\_23 (B2), Trypo\_93 (B1), TyrionL\_93 (B1), UAch1\_94 (B1), UncleHowie\_89 (B1), Usavi\_93 (B1), Vaishali24\_94 (B1), Valjean\_91 (B1), Vaticameos\_90 (B1), Veritas\_92 (B1), Vic9\_24 (B2), Virapocalypse\_94 (B1), Virgeve\_91 (B1), Vista\_92 (B1), Vivaldi\_93 (B1), Vortex\_91 (B1), Wallhey\_94 (B1), Waterdiva\_94 (B1), Weher20\_90 (B1), West99\_23 (B2), Windsor\_93 (B1), Xavier\_92 (B1), Yoshand\_94 (B1), YouGoGlencoco\_93 (B1), Zaider\_94 (B1), Zelda\_93 (B1), Zonia\_93 (B1),

Start 14:

- Found in 3 of 332 ( 0.9% ) of genes in pham
- Manual Annotations of this start: 2 of 307
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AuntGwenStacy\_118 (Y), Hilltopfarm\_119 (Y), Typha\_116 (Y),

Start 15:

- Found in 1 of 332 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 307
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Rey\_173 (M2),

### Summary by clusters:

There are 7 clusters represented in this pham: B2, Q, B1, B10, M2, Y, D2,

Info for manual annotations of cluster B1:

- Start number 13 was manually annotated 249 times for cluster B1.

Info for manual annotations of cluster B10:

- Start number 11 was manually annotated 1 time for cluster B10.

Info for manual annotations of cluster B2:

- Start number 13 was manually annotated 31 times for cluster B2.

Info for manual annotations of cluster D2:

- Start number 11 was manually annotated 1 time for cluster D2.

Info for manual annotations of cluster M2:

- Start number 15 was manually annotated 1 time for cluster M2.

Info for manual annotations of cluster Q:

- Start number 12 was manually annotated 22 times for cluster Q.

Info for manual annotations of cluster Y:

- Start number 14 was manually annotated 2 times for cluster Y.

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

Gene: ABU\_91 Start: 65401, Stop: 65204, Start Num: 13

Candidate Starts for ABU\_91:

(Start: 13 @65401 has 280 MA's), (19, 65338),

Gene: AbsoluteMadLad\_91 Start: 65354, Stop: 65157, Start Num: 13

Candidate Starts for AbsoluteMadLad\_91:

(Start: 13 @65354 has 280 MA's), (19, 65291), (22, 65198),

Gene: Adriana\_94 Start: 65916, Stop: 65719, Start Num: 13

Candidate Starts for Adriana\_94:

(Start: 13 @65916 has 280 MA's), (19, 65853), (22, 65760),

Gene: Aelin\_92 Start: 65034, Stop: 64837, Start Num: 13

Candidate Starts for Aelin\_92:

(Start: 13 @65034 has 280 MA's), (19, 64971),

Gene: Allegro\_23 Start: 19018, Stop: 18827, Start Num: 13

Candidate Starts for Allegro\_23:

(7, 19228), (8, 19192), (Start: 13 @19018 has 280 MA's), (18, 18958), (25, 18847),

Gene: AltPhacts\_90 Start: 64619, Stop: 64422, Start Num: 13

Candidate Starts for AltPhacts\_90:

(Start: 13 @64619 has 280 MA's), (19, 64556), (22, 64463),

Gene: Altwerkus\_90 Start: 64730, Stop: 64533, Start Num: 13

Candidate Starts for Altwerkus\_90:

(Start: 13 @64730 has 280 MA's), (19, 64667),

Gene: Amochick\_4 Start: 1826, Stop: 1617, Start Num: 12  
Candidate Starts for Amochick\_4:  
(Start: 12 @1826 has 22 MA's), (21, 1685), (22, 1655),

Gene: Amymech\_4 Start: 1826, Stop: 1617, Start Num: 12  
Candidate Starts for Amymech\_4:  
(Start: 12 @1826 has 22 MA's), (21, 1685), (22, 1655),

Gene: Anderson\_94 Start: 65277, Stop: 65080, Start Num: 13  
Candidate Starts for Anderson\_94:  
(Start: 13 @65277 has 280 MA's), (19, 65214),

Gene: AngelCake\_89 Start: 65026, Stop: 64829, Start Num: 13  
Candidate Starts for AngelCake\_89:  
(Start: 13 @65026 has 280 MA's), (19, 64963),

Gene: Antonia\_92 Start: 64902, Stop: 64705, Start Num: 13  
Candidate Starts for Antonia\_92:  
(Start: 13 @64902 has 280 MA's), (19, 64839),

Gene: Apizium\_91 Start: 64555, Stop: 64358, Start Num: 13  
Candidate Starts for Apizium\_91:  
(Start: 13 @64555 has 280 MA's), (19, 64492),

Gene: Arbiter\_23 Start: 19106, Stop: 18915, Start Num: 13  
Candidate Starts for Arbiter\_23:  
(7, 19316), (8, 19280), (Start: 13 @19106 has 280 MA's), (18, 19046), (25, 18935),

Gene: Ares\_23 Start: 19022, Stop: 18831, Start Num: 13  
Candidate Starts for Ares\_23:  
(7, 19232), (8, 19196), (Start: 13 @19022 has 280 MA's), (18, 18962), (25, 18851),

Gene: Ashraf\_94 Start: 65390, Stop: 65193, Start Num: 13  
Candidate Starts for Ashraf\_94:  
(Start: 13 @65390 has 280 MA's), (19, 65327), (20, 65306),

Gene: AuntGwenStacy\_118 Start: 69404, Stop: 69580, Start Num: 14  
Candidate Starts for AuntGwenStacy\_118:  
(1, 69011), (2, 69023), (3, 69041), (Start: 14 @69404 has 2 MA's),

Gene: Badfish\_93 Start: 65581, Stop: 65384, Start Num: 13  
Candidate Starts for Badfish\_93:  
(Start: 13 @65581 has 280 MA's), (19, 65518),

Gene: Bananafish\_23 Start: 19015, Stop: 18824, Start Num: 13  
Candidate Starts for Bananafish\_23:  
(7, 19225), (8, 19189), (Start: 13 @19015 has 280 MA's), (18, 18955), (25, 18844),

Gene: Banjo\_89 Start: 64847, Stop: 64650, Start Num: 13  
Candidate Starts for Banjo\_89:  
(Start: 13 @64847 has 280 MA's), (19, 64784), (22, 64691),



Gene: Basato\_92 Start: 65310, Stop: 65113, Start Num: 13  
Candidate Starts for Basato\_92:  
(Start: 13 @65310 has 280 MA's), (19, 65247), (22, 65154),

Gene: BatteryCK\_91 Start: 64837, Stop: 64640, Start Num: 13  
Candidate Starts for BatteryCK\_91:  
(Start: 13 @64837 has 280 MA's), (19, 64774),

Gene: Beaglebox\_89 Start: 64969, Stop: 64772, Start Num: 13  
Candidate Starts for Beaglebox\_89:  
(Start: 13 @64969 has 280 MA's), (19, 64906),

Gene: Bishoperium\_93 Start: 65416, Stop: 65219, Start Num: 13  
Candidate Starts for Bishoperium\_93:  
(Start: 13 @65416 has 280 MA's), (19, 65353),

Gene: BlackStallion\_92 Start: 65265, Stop: 65068, Start Num: 13  
Candidate Starts for BlackStallion\_92:  
(Start: 13 @65265 has 280 MA's), (19, 65202),

Gene: Blocker23\_23 Start: 19139, Stop: 18948, Start Num: 13  
Candidate Starts for Blocker23\_23:  
(7, 19349), (8, 19313), (Start: 13 @19139 has 280 MA's), (18, 19079), (25, 18968),

Gene: BlueHusk\_94 Start: 65090, Stop: 64893, Start Num: 13  
Candidate Starts for BlueHusk\_94:  
(Start: 13 @65090 has 280 MA's), (19, 65027), (22, 64934),

Gene: Bluephacebaby\_92 Start: 65450, Stop: 65253, Start Num: 13  
Candidate Starts for Bluephacebaby\_92:  
(Start: 13 @65450 has 280 MA's), (19, 65387),

Gene: Boehler\_91 Start: 65240, Stop: 65043, Start Num: 13  
Candidate Starts for Boehler\_91:  
(Start: 13 @65240 has 280 MA's), (19, 65177), (22, 65084),

Gene: Boyle\_23 Start: 19140, Stop: 18949, Start Num: 13  
Candidate Starts for Boyle\_23:  
(7, 19350), (8, 19314), (Start: 13 @19140 has 280 MA's), (18, 19080), (25, 18969),

Gene: Brilliant\_96 Start: 65429, Stop: 65232, Start Num: 13  
Candidate Starts for Brilliant\_96:  
(Start: 13 @65429 has 280 MA's), (19, 65366), (22, 65273),

Gene: Brownie5\_23 Start: 19139, Stop: 18948, Start Num: 13  
Candidate Starts for Brownie5\_23:  
(7, 19349), (8, 19313), (Start: 13 @19139 has 280 MA's), (18, 19079), (25, 18968),

Gene: Buckeye\_92 Start: 65968, Stop: 65771, Start Num: 13  
Candidate Starts for Buckeye\_92:  
(Start: 13 @65968 has 280 MA's), (19, 65905),

Gene: Calamitous\_23 Start: 19019, Stop: 18828, Start Num: 13

Candidate Starts for Calamitous\_23:  
(7, 19229), (8, 19193), (Start: 13 @19019 has 280 MA's), (18, 18959), (25, 18848),

Gene: CamL\_93 Start: 65201, Stop: 65004, Start Num: 13  
Candidate Starts for CamL\_93:  
(Start: 13 @65201 has 280 MA's), (19, 65138),

Gene: CampRoach\_93 Start: 65297, Stop: 65100, Start Num: 13  
Candidate Starts for CampRoach\_93:  
(Start: 13 @65297 has 280 MA's), (19, 65234), (22, 65141),

Gene: Cannibal\_93 Start: 65304, Stop: 65107, Start Num: 13  
Candidate Starts for Cannibal\_93:  
(Start: 13 @65304 has 280 MA's), (19, 65241),

Gene: Carthage\_94 Start: 64980, Stop: 64783, Start Num: 13  
Candidate Starts for Carthage\_94:  
(Start: 13 @64980 has 280 MA's), (19, 64917),

Gene: Caspiboi\_94 Start: 65136, Stop: 64939, Start Num: 13  
Candidate Starts for Caspiboi\_94:  
(Start: 13 @65136 has 280 MA's), (19, 65073),

Gene: Chaelin\_94 Start: 65430, Stop: 65233, Start Num: 13  
Candidate Starts for Chaelin\_94:  
(Start: 13 @65430 has 280 MA's), (19, 65367), (20, 65346),

Gene: Chah\_95 Start: 65001, Stop: 64804, Start Num: 13  
Candidate Starts for Chah\_95:  
(Start: 13 @65001 has 280 MA's), (19, 64938),

Gene: CharlieGBrown\_91 Start: 64932, Stop: 64735, Start Num: 13  
Candidate Starts for CharlieGBrown\_91:  
(Start: 13 @64932 has 280 MA's), (19, 64869), (22, 64776),

Gene: CheetO\_90 Start: 65306, Stop: 65109, Start Num: 13  
Candidate Starts for CheetO\_90:  
(Start: 13 @65306 has 280 MA's), (19, 65243), (22, 65150),

Gene: Cher\_93 Start: 65405, Stop: 65208, Start Num: 13  
Candidate Starts for Cher\_93:  
(Start: 13 @65405 has 280 MA's), (19, 65342),

Gene: Childish\_93 Start: 65595, Stop: 65398, Start Num: 13  
Candidate Starts for Childish\_93:  
(Start: 13 @65595 has 280 MA's), (19, 65532),

Gene: Chorkpop\_94 Start: 65057, Stop: 64860, Start Num: 13  
Candidate Starts for Chorkpop\_94:  
(Start: 13 @65057 has 280 MA's), (19, 64994),

Gene: Chunky\_92 Start: 64902, Stop: 64705, Start Num: 13  
Candidate Starts for Chunky\_92:

(Start: 13 @64902 has 280 MA's), (19, 64839), (22, 64746),

Gene: Chute\_93 Start: 65596, Stop: 65399, Start Num: 13

Candidate Starts for Chute\_93:

(Start: 13 @65596 has 280 MA's), (19, 65533),

Gene: Cobra\_93 Start: 65427, Stop: 65230, Start Num: 13

Candidate Starts for Cobra\_93:

(Start: 13 @65427 has 280 MA's), (19, 65364),

Gene: Coffee\_23 Start: 19132, Stop: 18941, Start Num: 13

Candidate Starts for Coffee\_23:

(7, 19342), (8, 19306), (Start: 13 @19132 has 280 MA's), (18, 19072), (25, 18961),

Gene: Colbert\_91 Start: 64325, Stop: 64128, Start Num: 13

Candidate Starts for Colbert\_91:

(Start: 13 @64325 has 280 MA's), (19, 64262), (22, 64169),

Gene: Coletti\_95 Start: 65952, Stop: 65755, Start Num: 13

Candidate Starts for Coletti\_95:

(Start: 13 @65952 has 280 MA's), (19, 65889),

Gene: Cornobble\_91 Start: 65053, Stop: 64856, Start Num: 13

Candidate Starts for Cornobble\_91:

(Start: 13 @65053 has 280 MA's), (19, 64990),

Gene: Cosmolli16\_95 Start: 65772, Stop: 65575, Start Num: 13

Candidate Starts for Cosmolli16\_95:

(Start: 13 @65772 has 280 MA's), (19, 65709),

Gene: Craff\_94 Start: 65814, Stop: 65617, Start Num: 13

Candidate Starts for Craff\_94:

(Start: 13 @65814 has 280 MA's), (19, 65751),

Gene: Crownjwl\_90 Start: 65081, Stop: 64884, Start Num: 13

Candidate Starts for Crownjwl\_90:

(Start: 13 @65081 has 280 MA's), (19, 65018), (22, 64925),

Gene: DaddyDaniels\_96 Start: 65548, Stop: 65351, Start Num: 13

Candidate Starts for DaddyDaniels\_96:

(Start: 13 @65548 has 280 MA's), (19, 65485),

Gene: Daegal\_5 Start: 2105, Stop: 1896, Start Num: 12

Candidate Starts for Daegal\_5:

(Start: 12 @2105 has 22 MA's), (21, 1964), (22, 1934),

Gene: Daffy\_92 Start: 65042, Stop: 64845, Start Num: 13

Candidate Starts for Daffy\_92:

(Start: 13 @65042 has 280 MA's), (19, 64979),

Gene: Daka\_95 Start: 65247, Stop: 65050, Start Num: 13

Candidate Starts for Daka\_95:

(Start: 13 @65247 has 280 MA's), (19, 65184), (22, 65091),

Gene: Dati\_90 Start: 65227, Stop: 65030, Start Num: 13

Candidate Starts for Dati\_90:

(Start: 13 @65227 has 280 MA's), (19, 65164),

Gene: DeepSoil15\_4 Start: 1826, Stop: 1617, Start Num: 12

Candidate Starts for DeepSoil15\_4:

(Start: 12 @1826 has 22 MA's), (21, 1685), (22, 1655),

Gene: Derpp\_92 Start: 64965, Stop: 64768, Start Num: 13

Candidate Starts for Derpp\_92:

(Start: 13 @64965 has 280 MA's), (19, 64902), (22, 64809),

Gene: Dewey\_4 Start: 1826, Stop: 1617, Start Num: 12

Candidate Starts for Dewey\_4:

(Start: 12 @1826 has 22 MA's), (21, 1685), (22, 1655),

Gene: Dice\_93 Start: 64888, Stop: 64691, Start Num: 13

Candidate Starts for Dice\_93:

(Start: 13 @64888 has 280 MA's), (19, 64825),

Gene: Dingo\_90 Start: 64608, Stop: 64411, Start Num: 13

Candidate Starts for Dingo\_90:

(Start: 13 @64608 has 280 MA's), (19, 64545),

Gene: Dione\_91 Start: 64608, Stop: 64411, Start Num: 13

Candidate Starts for Dione\_91:

(Start: 13 @64608 has 280 MA's), (19, 64545),

Gene: Doddsville\_90 Start: 65048, Stop: 64851, Start Num: 13

Candidate Starts for Doddsville\_90:

(Start: 13 @65048 has 280 MA's), (19, 64985),

Gene: DoesntMatter\_90 Start: 64882, Stop: 64685, Start Num: 13

Candidate Starts for DoesntMatter\_90:

(Start: 13 @64882 has 280 MA's), (19, 64819),

Gene: DuchessDung\_90 Start: 64563, Stop: 64366, Start Num: 13

Candidate Starts for DuchessDung\_90:

(Start: 13 @64563 has 280 MA's), (19, 64500), (22, 64407),

Gene: Duggie\_93 Start: 65190, Stop: 64993, Start Num: 13

Candidate Starts for Duggie\_93:

(Start: 13 @65190 has 280 MA's), (19, 65127),

Gene: Durga\_95 Start: 65671, Stop: 65474, Start Num: 13

Candidate Starts for Durga\_95:

(Start: 13 @65671 has 280 MA's), (19, 65608), (22, 65515),

Gene: Eaglehorse\_23 Start: 19040, Stop: 18849, Start Num: 13

Candidate Starts for Eaglehorse\_23:

(7, 19250), (8, 19214), (Start: 13 @19040 has 280 MA's), (18, 18980), (25, 18869),

Gene: Ein37\_4 Start: 1826, Stop: 1617, Start Num: 12  
Candidate Starts for Ein37\_4:  
(Start: 12 @1826 has 22 MA's), (21, 1685), (22, 1655),

Gene: ElvisPhasley\_99 Start: 66212, Stop: 66015, Start Num: 13  
Candidate Starts for ElvisPhasley\_99:  
(Start: 13 @66212 has 280 MA's), (19, 66149),

Gene: Emiris\_95 Start: 65578, Stop: 65381, Start Num: 13  
Candidate Starts for Emiris\_95:  
(Start: 13 @65578 has 280 MA's), (19, 65515),

Gene: EmpTee\_92 Start: 64979, Stop: 64782, Start Num: 13  
Candidate Starts for EmpTee\_92:  
(Start: 13 @64979 has 280 MA's), (19, 64916), (22, 64823),

Gene: Eremos\_91 Start: 65269, Stop: 65072, Start Num: 13  
Candidate Starts for Eremos\_91:  
(Start: 13 @65269 has 280 MA's), (19, 65206), (22, 65113),

Gene: Etaye\_92 Start: 65755, Stop: 65558, Start Num: 13  
Candidate Starts for Etaye\_92:  
(Start: 13 @65755 has 280 MA's), (19, 65692),

Gene: Eugenia\_95 Start: 65690, Stop: 65493, Start Num: 13  
Candidate Starts for Eugenia\_95:  
(Start: 13 @65690 has 280 MA's), (19, 65627),

Gene: Evanesce\_4 Start: 1826, Stop: 1617, Start Num: 12  
Candidate Starts for Evanesce\_4:  
(Start: 12 @1826 has 22 MA's), (21, 1685), (22, 1655),

Gene: Fang\_94 Start: 65398, Stop: 65201, Start Num: 13  
Candidate Starts for Fang\_94:  
(Start: 13 @65398 has 280 MA's), (19, 65335),

Gene: Faze9\_23 Start: 19136, Stop: 18945, Start Num: 13  
Candidate Starts for Faze9\_23:  
(7, 19346), (8, 19310), (Start: 13 @19136 has 280 MA's), (18, 19076), (25, 18965),

Gene: FluffyNinja\_94 Start: 65267, Stop: 65070, Start Num: 13  
Candidate Starts for FluffyNinja\_94:  
(Start: 13 @65267 has 280 MA's), (19, 65204),

Gene: Forge\_4 Start: 1826, Stop: 1617, Start Num: 12  
Candidate Starts for Forge\_4:  
(Start: 12 @1826 has 22 MA's), (21, 1685), (22, 1655),

Gene: Fozzie\_90 Start: 65594, Stop: 65397, Start Num: 13  
Candidate Starts for Fozzie\_90:  
(Start: 13 @65594 has 280 MA's), (19, 65531),

Gene: Frankicide\_91 Start: 65094, Stop: 64897, Start Num: 13

Candidate Starts for Frankicide\_91:  
(Start: 13 @65094 has 280 MA's), (19, 65031), (22, 64938),

Gene: FrenchFry\_23 Start: 19139, Stop: 18948, Start Num: 13  
Candidate Starts for FrenchFry\_23:  
(7, 19349), (8, 19313), (Start: 13 @19139 has 280 MA's), (18, 19079), (25, 18968),

Gene: Freya\_89 Start: 64586, Stop: 64389, Start Num: 13  
Candidate Starts for Freya\_89:  
(Start: 13 @64586 has 280 MA's), (19, 64523),

Gene: FriarPreacher\_90 Start: 64965, Stop: 64768, Start Num: 13  
Candidate Starts for FriarPreacher\_90:  
(Start: 13 @64965 has 280 MA's), (19, 64902),

Gene: Fringe\_97 Start: 65742, Stop: 65545, Start Num: 13  
Candidate Starts for Fringe\_97:  
(Start: 13 @65742 has 280 MA's), (19, 65679),

Gene: FugateOSU\_93 Start: 66027, Stop: 65830, Start Num: 13  
Candidate Starts for FugateOSU\_93:  
(Start: 13 @66027 has 280 MA's), (19, 65964),

Gene: Gancho\_3 Start: 1532, Stop: 1323, Start Num: 12  
Candidate Starts for Gancho\_3:  
(Start: 12 @1532 has 22 MA's), (21, 1391), (22, 1361),

Gene: Gareth\_104 Start: 65416, Stop: 65219, Start Num: 13  
Candidate Starts for Gareth\_104:  
(Start: 13 @65416 has 280 MA's), (19, 65353),

Gene: GeneCoco\_93 Start: 65595, Stop: 65398, Start Num: 13  
Candidate Starts for GeneCoco\_93:  
(Start: 13 @65595 has 280 MA's), (19, 65532),

Gene: Giles\_4 Start: 1826, Stop: 1617, Start Num: 12  
Candidate Starts for Giles\_4:  
(Start: 12 @1826 has 22 MA's), (21, 1685), (22, 1655),

Gene: Giraffe\_94 Start: 65420, Stop: 65223, Start Num: 13  
Candidate Starts for Giraffe\_94:  
(Start: 13 @65420 has 280 MA's), (19, 65357),

Gene: Glass\_23 Start: 19139, Stop: 18948, Start Num: 13  
Candidate Starts for Glass\_23:  
(7, 19349), (8, 19313), (Start: 13 @19139 has 280 MA's), (18, 19079), (25, 18968),

Gene: Godines\_23 Start: 19032, Stop: 18841, Start Num: 13  
Candidate Starts for Godines\_23:  
(7, 19242), (8, 19206), (Start: 13 @19032 has 280 MA's), (18, 18972), (25, 18861),

Gene: Gophee\_92 Start: 65407, Stop: 65210, Start Num: 13  
Candidate Starts for Gophee\_92:

(Start: 13 @65407 has 280 MA's), (19, 65344),

Gene: Grand2040\_91 Start: 65385, Stop: 65188, Start Num: 13

Candidate Starts for Grand2040\_91:

(Start: 13 @65385 has 280 MA's), (19, 65322),

Gene: Gravaillia\_4 Start: 1565, Stop: 1356, Start Num: 12

Candidate Starts for Gravaillia\_4:

(Start: 12 @1565 has 22 MA's), (21, 1424), (22, 1394),

Gene: Gwennie1\_90 Start: 65231, Stop: 65034, Start Num: 13

Candidate Starts for Gwennie1\_90:

(Start: 13 @65231 has 280 MA's), (19, 65168),

Gene: Gwilliam\_93 Start: 65950, Stop: 65753, Start Num: 13

Candidate Starts for Gwilliam\_93:

(Start: 13 @65950 has 280 MA's), (19, 65887),

Gene: Gyarad\_0092 Start: 64905, Stop: 64708, Start Num: 13

Candidate Starts for Gyarad\_0092:

(Start: 13 @64905 has 280 MA's), (19, 64842),

Gene: HH92\_4 Start: 1826, Stop: 1617, Start Num: 12

Candidate Starts for HH92\_4:

(Start: 12 @1826 has 22 MA's), (21, 1685), (22, 1655),

Gene: HSavage\_91 Start: 64922, Stop: 64725, Start Num: 13

Candidate Starts for HSavage\_91:

(Start: 13 @64922 has 280 MA's), (19, 64859), (22, 64766),

Gene: Hadrien\_4 Start: 1826, Stop: 1617, Start Num: 12

Candidate Starts for Hadrien\_4:

(Start: 12 @1826 has 22 MA's), (21, 1685), (22, 1655),

Gene: Hail\_4 Start: 1826, Stop: 1617, Start Num: 12

Candidate Starts for Hail\_4:

(Start: 12 @1826 has 22 MA's), (21, 1685), (22, 1655),

Gene: Haimas\_90 Start: 64847, Stop: 64650, Start Num: 13

Candidate Starts for Haimas\_90:

(Start: 13 @64847 has 280 MA's), (19, 64784),

Gene: Haleema\_92 Start: 64966, Stop: 64769, Start Num: 13

Candidate Starts for Haleema\_92:

(Start: 13 @64966 has 280 MA's), (19, 64903),

Gene: Hamish\_90 Start: 65135, Stop: 64938, Start Num: 13

Candidate Starts for Hamish\_90:

(Start: 13 @65135 has 280 MA's), (19, 65072),

Gene: Hartsy\_91 Start: 65084, Stop: 64887, Start Num: 13

Candidate Starts for Hartsy\_91:

(Start: 13 @65084 has 280 MA's), (19, 65021),

Gene: Harvey\_90 Start: 64744, Stop: 64547, Start Num: 13

Candidate Starts for Harvey\_90:

(Start: 13 @64744 has 280 MA's), (19, 64681), (22, 64588),

Gene: Hawkeye\_50 Start: 36867, Stop: 37094, Start Num: 11

Candidate Starts for Hawkeye\_50:

(4, 36585), (6, 36669), (9, 36750), (Start: 11 @36867 has 2 MA's),

Gene: Hedgerow\_23 Start: 19121, Stop: 18930, Start Num: 13

Candidate Starts for Hedgerow\_23:

(7, 19331), (8, 19295), (Start: 13 @19121 has 280 MA's), (18, 19061), (25, 18950),

Gene: Held\_91 Start: 64864, Stop: 64667, Start Num: 13

Candidate Starts for Held\_91:

(Start: 13 @64864 has 280 MA's), (19, 64801),

Gene: HenryJackson\_93 Start: 65584, Stop: 65387, Start Num: 13

Candidate Starts for HenryJackson\_93:

(Start: 13 @65584 has 280 MA's), (19, 65521),

Gene: Hertubise\_92 Start: 65226, Stop: 65029, Start Num: 13

Candidate Starts for Hertubise\_92:

(Start: 13 @65226 has 280 MA's), (19, 65163),

Gene: Hetaeria\_93 Start: 65233, Stop: 65036, Start Num: 13

Candidate Starts for Hetaeria\_93:

(Start: 13 @65233 has 280 MA's), (19, 65170),

Gene: HighStump\_95 Start: 65371, Stop: 65174, Start Num: 13

Candidate Starts for HighStump\_95:

(Start: 13 @65371 has 280 MA's), (19, 65308),

Gene: Hilltopfarm\_119 Start: 70095, Stop: 70271, Start Num: 14

Candidate Starts for Hilltopfarm\_119:

(Start: 14 @70095 has 2 MA's),

Gene: Hocus\_92 Start: 64885, Stop: 64688, Start Num: 13

Candidate Starts for Hocus\_92:

(Start: 13 @64885 has 280 MA's), (19, 64822), (22, 64729),

Gene: Holeinone\_23 Start: 19017, Stop: 18826, Start Num: 13

Candidate Starts for Holeinone\_23:

(7, 19227), (8, 19191), (Start: 13 @19017 has 280 MA's), (18, 18957), (25, 18846),

Gene: Horchata\_88 Start: 65062, Stop: 64865, Start Num: 13

Candidate Starts for Horchata\_88:

(Start: 13 @65062 has 280 MA's), (19, 64999), (22, 64906),

Gene: ImtiyazSitla\_94 Start: 65390, Stop: 65193, Start Num: 13

Candidate Starts for ImtiyazSitla\_94:

(Start: 13 @65390 has 280 MA's), (19, 65327), (20, 65306),



Gene: Imvubu\_89 Start: 65261, Stop: 65037, Start Num: 11  
Candidate Starts for Imvubu\_89:  
(5, 65516), (Start: 11 @65261 has 2 MA's), (23, 65078),

Gene: Inchworm\_94 Start: 65257, Stop: 65060, Start Num: 13  
Candidate Starts for Inchworm\_94:  
(Start: 13 @65257 has 280 MA's), (19, 65194),

Gene: Inverness\_91 Start: 65058, Stop: 64861, Start Num: 13  
Candidate Starts for Inverness\_91:  
(Start: 13 @65058 has 280 MA's), (19, 64995), (22, 64902),

Gene: Iridessa\_95 Start: 64983, Stop: 64786, Start Num: 13  
Candidate Starts for Iridessa\_95:  
(Start: 13 @64983 has 280 MA's), (19, 64920),

Gene: Iridoclysis\_92 Start: 65148, Stop: 64951, Start Num: 13  
Candidate Starts for Iridoclysis\_92:  
(Start: 13 @65148 has 280 MA's), (19, 65085),

Gene: IsaacEli\_95 Start: 65389, Stop: 65192, Start Num: 13  
Candidate Starts for IsaacEli\_95:  
(Start: 13 @65389 has 280 MA's), (19, 65326), (22, 65233),

Gene: ItsyBitsy1\_23 Start: 19010, Stop: 18819, Start Num: 13  
Candidate Starts for ItsyBitsy1\_23:  
(7, 19220), (8, 19184), (Start: 13 @19010 has 280 MA's), (18, 18950), (25, 18839),

Gene: JDog\_92 Start: 65418, Stop: 65221, Start Num: 13  
Candidate Starts for JDog\_92:  
(Start: 13 @65418 has 280 MA's), (19, 65355),

Gene: JacAttac\_93 Start: 64862, Stop: 64665, Start Num: 13  
Candidate Starts for JacAttac\_93:  
(Start: 13 @64862 has 280 MA's), (19, 64799),

Gene: JakeO\_94 Start: 65146, Stop: 64949, Start Num: 13  
Candidate Starts for JakeO\_94:  
(Start: 13 @65146 has 280 MA's), (19, 65083),

Gene: JangoPhett\_91 Start: 65223, Stop: 65026, Start Num: 13  
Candidate Starts for JangoPhett\_91:  
(Start: 13 @65223 has 280 MA's), (19, 65160),

Gene: Jesabah\_92 Start: 65985, Stop: 65788, Start Num: 13  
Candidate Starts for Jesabah\_92:  
(Start: 13 @65985 has 280 MA's), (19, 65922),

Gene: Jillium\_94 Start: 65579, Stop: 65382, Start Num: 13  
Candidate Starts for Jillium\_94:  
(Start: 13 @65579 has 280 MA's), (19, 65516),

Gene: Jiminy\_93 Start: 65082, Stop: 64885, Start Num: 13

Candidate Starts for Jiminy\_93:  
(Start: 13 @65082 has 280 MA's), (19, 65019),

Gene: Jiraiya\_98 Start: 65166, Stop: 64969, Start Num: 13  
Candidate Starts for Jiraiya\_98:  
(Start: 13 @65166 has 280 MA's), (19, 65103), (22, 65010),

Gene: KLucky39\_91 Start: 64941, Stop: 64744, Start Num: 13  
Candidate Starts for KLucky39\_91:  
(Start: 13 @64941 has 280 MA's), (19, 64878), (22, 64785),

Gene: Kahve\_93 Start: 65582, Stop: 65385, Start Num: 13  
Candidate Starts for Kahve\_93:  
(Start: 13 @65582 has 280 MA's), (19, 65519),

Gene: Kailash\_91 Start: 65281, Stop: 65084, Start Num: 13  
Candidate Starts for Kailash\_91:  
(Start: 13 @65281 has 280 MA's), (19, 65218), (22, 65125),

Gene: Kaleb\_23 Start: 19136, Stop: 18945, Start Num: 13  
Candidate Starts for Kaleb\_23:  
(7, 19346), (8, 19310), (Start: 13 @19136 has 280 MA's), (18, 19076), (25, 18965),

Gene: Katniss\_95 Start: 64998, Stop: 64801, Start Num: 13  
Candidate Starts for Katniss\_95:  
(Start: 13 @64998 has 280 MA's), (19, 64935),

Gene: Keitherie\_96 Start: 65640, Stop: 65443, Start Num: 13  
Candidate Starts for Keitherie\_96:  
(Start: 13 @65640 has 280 MA's), (19, 65577),

Gene: Khan1\_93 Start: 65361, Stop: 65164, Start Num: 13  
Candidate Starts for Khan1\_93:  
(Start: 13 @65361 has 280 MA's), (19, 65298),

Gene: Kheth\_23 Start: 19022, Stop: 18831, Start Num: 13  
Candidate Starts for Kheth\_23:  
(7, 19232), (8, 19196), (Start: 13 @19022 has 280 MA's), (18, 18962), (25, 18851),

Gene: Kikipoo\_95 Start: 65389, Stop: 65192, Start Num: 13  
Candidate Starts for Kikipoo\_95:  
(Start: 13 @65389 has 280 MA's), (19, 65326), (22, 65233),

Gene: Kimbrough\_94 Start: 65461, Stop: 65264, Start Num: 13  
Candidate Starts for Kimbrough\_94:  
(Start: 13 @65461 has 280 MA's), (19, 65398),

Gene: Kinbote\_4 Start: 1826, Stop: 1617, Start Num: 12  
Candidate Starts for Kinbote\_4:  
(Start: 12 @1826 has 22 MA's), (21, 1685), (22, 1655),

Gene: KingTut\_84 Start: 61621, Stop: 61424, Start Num: 13  
Candidate Starts for KingTut\_84:

(Start: 13 @61621 has 280 MA's), (19, 61558),

Gene: KingVeVeVe\_91 Start: 64594, Stop: 64397, Start Num: 13

Candidate Starts for KingVeVeVe\_91:

(Start: 13 @64594 has 280 MA's), (19, 64531), (22, 64438),

Gene: KlimbOn\_92 Start: 64901, Stop: 64704, Start Num: 13

Candidate Starts for KlimbOn\_92:

(Start: 13 @64901 has 280 MA's), (19, 64838),

Gene: Kloppinator\_93 Start: 65030, Stop: 64833, Start Num: 13

Candidate Starts for Kloppinator\_93:

(Start: 13 @65030 has 280 MA's), (19, 64967),

Gene: Kolhan\_23 Start: 19019, Stop: 18828, Start Num: 13

Candidate Starts for Kolhan\_23:

(7, 19229), (8, 19193), (Start: 13 @19019 has 280 MA's), (18, 18959), (25, 18848),

Gene: Kwadwo\_92 Start: 64886, Stop: 64689, Start Num: 13

Candidate Starts for Kwadwo\_92:

(Start: 13 @64886 has 280 MA's), (19, 64823), (24, 64721),

Gene: Kwksand96\_94 Start: 65151, Stop: 64954, Start Num: 13

Candidate Starts for Kwksand96\_94:

(Start: 13 @65151 has 280 MA's), (19, 65088), (20, 65067),

Gene: Labeouficaum\_93 Start: 64965, Stop: 64768, Start Num: 13

Candidate Starts for Labeouficaum\_93:

(Start: 13 @64965 has 280 MA's), (19, 64902), (22, 64809),

Gene: Lars\_23 Start: 19139, Stop: 18948, Start Num: 13

Candidate Starts for Lars\_23:

(7, 19349), (8, 19313), (Start: 13 @19139 has 280 MA's), (18, 19079), (25, 18968),

Gene: LasagnaCat\_94 Start: 65267, Stop: 65070, Start Num: 13

Candidate Starts for LasagnaCat\_94:

(Start: 13 @65267 has 280 MA's), (19, 65204),

Gene: Lasso\_92 Start: 65127, Stop: 64930, Start Num: 13

Candidate Starts for Lasso\_92:

(Start: 13 @65127 has 280 MA's), (19, 65064),

Gene: Laurie\_23 Start: 19013, Stop: 18822, Start Num: 13

Candidate Starts for Laurie\_23:

(7, 19223), (8, 19187), (Start: 13 @19013 has 280 MA's), (18, 18953), (25, 18842),

Gene: LeeLot\_91 Start: 65471, Stop: 65274, Start Num: 13

Candidate Starts for LeeLot\_91:

(Start: 13 @65471 has 280 MA's), (19, 65408),

Gene: Lego3393\_91 Start: 65588, Stop: 65391, Start Num: 13

Candidate Starts for Lego3393\_91:

(Start: 13 @65588 has 280 MA's), (19, 65525), (22, 65432),

Gene: Legolas\_94 Start: 65215, Stop: 65018, Start Num: 13

Candidate Starts for Legolas\_94:

(Start: 13 @65215 has 280 MA's), (19, 65152),

Gene: LeiMonet\_95 Start: 65348, Stop: 65151, Start Num: 13

Candidate Starts for LeiMonet\_95:

(Start: 13 @65348 has 280 MA's), (19, 65285),

Gene: LemonSlice\_93 Start: 64874, Stop: 64677, Start Num: 13

Candidate Starts for LemonSlice\_93:

(Start: 13 @64874 has 280 MA's), (19, 64811),

Gene: Lephleur\_23 Start: 19019, Stop: 18828, Start Num: 13

Candidate Starts for Lephleur\_23:

(7, 19229), (8, 19193), (Start: 13 @19019 has 280 MA's), (18, 18959), (25, 18848),

Gene: LilHazelnut\_4 Start: 1826, Stop: 1617, Start Num: 12

Candidate Starts for LilHazelnut\_4:

(Start: 12 @1826 has 22 MA's), (21, 1685), (22, 1655),

Gene: LilSmirk\_23 Start: 19019, Stop: 18828, Start Num: 13

Candidate Starts for LilSmirk\_23:

(7, 19229), (8, 19193), (Start: 13 @19019 has 280 MA's), (18, 18959), (25, 18848),

Gene: LizLemon\_23 Start: 19136, Stop: 18945, Start Num: 13

Candidate Starts for LizLemon\_23:

(7, 19346), (8, 19310), (Start: 13 @19136 has 280 MA's), (18, 19076), (25, 18965),

Gene: Longacauda\_94 Start: 65366, Stop: 65169, Start Num: 13

Candidate Starts for Longacauda\_94:

(Start: 13 @65366 has 280 MA's), (19, 65303), (20, 65282),

Gene: Lopsy\_89 Start: 64781, Stop: 64584, Start Num: 13

Candidate Starts for Lopsy\_89:

(Start: 13 @64781 has 280 MA's), (19, 64718),

Gene: LostAndPhound\_92 Start: 65416, Stop: 65219, Start Num: 13

Candidate Starts for LostAndPhound\_92:

(Start: 13 @65416 has 280 MA's), (19, 65353),

Gene: LuckyMarjie\_90 Start: 64626, Stop: 64429, Start Num: 13

Candidate Starts for LuckyMarjie\_90:

(Start: 13 @64626 has 280 MA's), (19, 64563),

Gene: Luke\_4 Start: 1826, Stop: 1617, Start Num: 12

Candidate Starts for Luke\_4:

(Start: 12 @1826 has 22 MA's), (21, 1685), (22, 1655),

Gene: Lulumae\_88 Start: 64607, Stop: 64410, Start Num: 13

Candidate Starts for Lulumae\_88:

(Start: 13 @64607 has 280 MA's), (19, 64544),

Gene: Lulwa\_90 Start: 64240, Stop: 64043, Start Num: 13  
Candidate Starts for Lulwa\_90:  
(Start: 13 @64240 has 280 MA's), (19, 64177),

Gene: Lumine\_94 Start: 65065, Stop: 64868, Start Num: 13  
Candidate Starts for Lumine\_94:  
(Start: 13 @65065 has 280 MA's), (19, 65002), (22, 64909),

Gene: Luna22\_4 Start: 1826, Stop: 1617, Start Num: 12  
Candidate Starts for Luna22\_4:  
(Start: 12 @1826 has 22 MA's), (21, 1685), (22, 1655),

Gene: MRabcd\_93 Start: 65342, Stop: 65145, Start Num: 13  
Candidate Starts for MRabcd\_93:  
(Start: 13 @65342 has 280 MA's), (19, 65279),

Gene: Mag7\_91 Start: 64825, Stop: 64628, Start Num: 13  
Candidate Starts for Mag7\_91:  
(Start: 13 @64825 has 280 MA's), (19, 64762), (22, 64669),

Gene: Magic8\_92 Start: 65193, Stop: 64996, Start Num: 13  
Candidate Starts for Magic8\_92:  
(Start: 13 @65193 has 280 MA's), (19, 65130),

Gene: Mana\_90 Start: 65030, Stop: 64833, Start Num: 13  
Candidate Starts for Mana\_90:  
(Start: 13 @65030 has 280 MA's), (19, 64967),

Gene: Manad\_92 Start: 65139, Stop: 64942, Start Num: 13  
Candidate Starts for Manad\_92:  
(Start: 13 @65139 has 280 MA's), (19, 65076), (22, 64983),

Gene: Maru\_93 Start: 65478, Stop: 65281, Start Num: 13  
Candidate Starts for Maru\_93:  
(Start: 13 @65478 has 280 MA's), (19, 65415),

Gene: Maskar\_94 Start: 65390, Stop: 65193, Start Num: 13  
Candidate Starts for Maskar\_94:  
(Start: 13 @65390 has 280 MA's), (19, 65327), (20, 65306),

Gene: MasterPo\_23 Start: 19019, Stop: 18828, Start Num: 13  
Candidate Starts for MasterPo\_23:  
(7, 19229), (8, 19193), (Start: 13 @19019 has 280 MA's), (18, 18959), (25, 18848),

Gene: Matalotodo\_91 Start: 65874, Stop: 65677, Start Num: 13  
Candidate Starts for Matalotodo\_91:  
(Start: 13 @65874 has 280 MA's), (19, 65811),

Gene: Mecca\_93 Start: 65442, Stop: 65245, Start Num: 13  
Candidate Starts for Mecca\_93:  
(Start: 13 @65442 has 280 MA's), (19, 65379), (22, 65286),

Gene: Megatron\_94 Start: 65560, Stop: 65363, Start Num: 13

Candidate Starts for Megatron\_94:  
(Start: 13 @65560 has 280 MA's), (19, 65497), (22, 65404),

Gene: Melc17\_90 Start: 65510, Stop: 65313, Start Num: 13  
Candidate Starts for Melc17\_90:  
(Start: 13 @65510 has 280 MA's), (19, 65447),

Gene: MelsMeow\_92 Start: 65148, Stop: 64951, Start Num: 13  
Candidate Starts for MelsMeow\_92:  
(Start: 13 @65148 has 280 MA's), (19, 65085), (20, 65064),

Gene: Mesh1\_94 Start: 65603, Stop: 65406, Start Num: 13  
Candidate Starts for Mesh1\_94:  
(Start: 13 @65603 has 280 MA's), (19, 65540),

Gene: Mesmerelda\_94 Start: 65441, Stop: 65244, Start Num: 13  
Candidate Starts for Mesmerelda\_94:  
(Start: 13 @65441 has 280 MA's), (19, 65378),

Gene: MichaelPhcott\_91 Start: 64822, Stop: 64625, Start Num: 13  
Candidate Starts for MichaelPhcott\_91:  
(Start: 13 @64822 has 280 MA's), (19, 64759), (22, 64666),

Gene: Mikota\_88 Start: 64593, Stop: 64396, Start Num: 13  
Candidate Starts for Mikota\_88:  
(Start: 13 @64593 has 280 MA's), (19, 64530),

Gene: MiniBoss\_89 Start: 64193, Stop: 63996, Start Num: 13  
Candidate Starts for MiniBoss\_89:  
(Start: 13 @64193 has 280 MA's), (19, 64130),

Gene: MitKao\_93 Start: 65043, Stop: 64846, Start Num: 13  
Candidate Starts for MitKao\_93:  
(Start: 13 @65043 has 280 MA's), (19, 64980),

Gene: Morgushi\_90 Start: 64858, Stop: 64661, Start Num: 13  
Candidate Starts for Morgushi\_90:  
(Start: 13 @64858 has 280 MA's), (19, 64795),

Gene: Morty\_93 Start: 65428, Stop: 65231, Start Num: 13  
Candidate Starts for Morty\_93:  
(Start: 13 @65428 has 280 MA's), (19, 65365),

Gene: Mosaic\_90 Start: 65039, Stop: 64842, Start Num: 13  
Candidate Starts for Mosaic\_90:  
(Start: 13 @65039 has 280 MA's), (19, 64976),

Gene: MrPhizzler\_92 Start: 65338, Stop: 65141, Start Num: 13  
Candidate Starts for MrPhizzler\_92:  
(Start: 13 @65338 has 280 MA's), (19, 65275),

Gene: Mulan\_92 Start: 65072, Stop: 64875, Start Num: 13  
Candidate Starts for Mulan\_92:

(Start: 13 @65072 has 280 MA's), (19, 65009),

Gene: Murdoc\_89 Start: 65151, Stop: 64954, Start Num: 13

Candidate Starts for Murdoc\_89:

(Start: 13 @65151 has 280 MA's), (19, 65088),

Gene: Mutante\_94 Start: 65045, Stop: 64848, Start Num: 13

Candidate Starts for Mutante\_94:

(Start: 13 @65045 has 280 MA's), (19, 64982),

Gene: Nacho\_0096 Start: 66116, Stop: 65919, Start Num: 13

Candidate Starts for Nacho\_0096:

(Start: 13 @66116 has 280 MA's), (19, 66053),

Gene: Nathan\_93 Start: 65571, Stop: 65374, Start Num: 13

Candidate Starts for Nathan\_93:

(Start: 13 @65571 has 280 MA's), (19, 65508),

Gene: Newman\_89 Start: 65392, Stop: 65195, Start Num: 13

Candidate Starts for Newman\_89:

(Start: 13 @65392 has 280 MA's), (19, 65329), (22, 65236),

Gene: Nicole21\_94 Start: 65178, Stop: 64981, Start Num: 13

Candidate Starts for Nicole21\_94:

(Start: 13 @65178 has 280 MA's), (19, 65115),

Gene: Numberten\_93 Start: 65158, Stop: 64961, Start Num: 13

Candidate Starts for Numberten\_93:

(Start: 13 @65158 has 280 MA's), (19, 65095),

Gene: Nyala\_93 Start: 64894, Stop: 64697, Start Num: 13

Candidate Starts for Nyala\_93:

(Start: 13 @64894 has 280 MA's), (19, 64831),

Gene: OBUpride\_4 Start: 1826, Stop: 1617, Start Num: 12

Candidate Starts for OBUpride\_4:

(Start: 12 @1826 has 22 MA's), (21, 1685), (22, 1655),

Gene: OSmaximus\_94 Start: 65724, Stop: 65527, Start Num: 13

Candidate Starts for OSmaximus\_94:

(Start: 13 @65724 has 280 MA's), (19, 65661),

Gene: Oline\_92 Start: 65049, Stop: 64852, Start Num: 13

Candidate Starts for Oline\_92:

(Start: 13 @65049 has 280 MA's), (19, 64986), (22, 64893),

Gene: Olive\_89 Start: 65290, Stop: 65093, Start Num: 13

Candidate Starts for Olive\_89:

(Start: 13 @65290 has 280 MA's), (19, 65227),

Gene: OliverWalter\_92 Start: 65343, Stop: 65146, Start Num: 13

Candidate Starts for OliverWalter\_92:

(Start: 13 @65343 has 280 MA's), (19, 65280),

Gene: Omniscient\_94 Start: 65748, Stop: 65551, Start Num: 13  
Candidate Starts for Omniscient\_94:  
(Start: 13 @65748 has 280 MA's), (19, 65685),

Gene: Oosterbaan\_93 Start: 65285, Stop: 65088, Start Num: 13  
Candidate Starts for Oosterbaan\_93:  
(Start: 13 @65285 has 280 MA's), (19, 65222),

Gene: Opia\_23 Start: 19019, Stop: 18828, Start Num: 13  
Candidate Starts for Opia\_23:  
(7, 19229), (8, 19193), (Start: 13 @19019 has 280 MA's), (18, 18959), (25, 18848),

Gene: Orfeu\_93 Start: 65408, Stop: 65211, Start Num: 13  
Candidate Starts for Orfeu\_93:  
(Start: 13 @65408 has 280 MA's), (19, 65345), (22, 65252),

Gene: Orion\_91 Start: 64978, Stop: 64781, Start Num: 13  
Candidate Starts for Orion\_91:  
(Start: 13 @64978 has 280 MA's), (19, 64915),

Gene: PG1\_91 Start: 65550, Stop: 65353, Start Num: 13  
Candidate Starts for PG1\_91:  
(Start: 13 @65550 has 280 MA's), (19, 65487),

Gene: Phamished\_92 Start: 65066, Stop: 64869, Start Num: 13  
Candidate Starts for Phamished\_92:  
(Start: 13 @65066 has 280 MA's), (19, 65003),

Gene: Phantasmagoria\_23 Start: 19015, Stop: 18824, Start Num: 13  
Candidate Starts for Phantasmagoria\_23:  
(7, 19225), (8, 19189), (Start: 13 @19015 has 280 MA's), (18, 18955), (25, 18844),

Gene: Phareon\_90 Start: 64591, Stop: 64394, Start Num: 13  
Candidate Starts for Phareon\_90:  
(Start: 13 @64591 has 280 MA's), (19, 64528),

Gene: PhatCats2014\_92 Start: 65550, Stop: 65353, Start Num: 13  
Candidate Starts for PhatCats2014\_92:  
(Start: 13 @65550 has 280 MA's), (19, 65487), (22, 65394),

Gene: PhatLouie\_95 Start: 65424, Stop: 65227, Start Num: 13  
Candidate Starts for PhatLouie\_95:  
(Start: 13 @65424 has 280 MA's), (19, 65361),

Gene: PhenghisKhan\_93 Start: 65055, Stop: 64858, Start Num: 13  
Candidate Starts for PhenghisKhan\_93:  
(Start: 13 @65055 has 280 MA's), (19, 64992),

Gene: Pherdinand\_94 Start: 65270, Stop: 65073, Start Num: 13  
Candidate Starts for Pherdinand\_94:  
(Start: 13 @65270 has 280 MA's), (19, 65207),



Gene: Phergie\_93 Start: 65044, Stop: 64847, Start Num: 13  
Candidate Starts for Phergie\_93:  
(Start: 13 @65044 has 280 MA's), (19, 64981),

Gene: Phipps\_91 Start: 65122, Stop: 64925, Start Num: 13  
Candidate Starts for Phipps\_91:  
(Start: 13 @65122 has 280 MA's), (19, 65059),

Gene: Phleuron\_90 Start: 64855, Stop: 64658, Start Num: 13  
Candidate Starts for Phleuron\_90:  
(Start: 13 @64855 has 280 MA's), (19, 64792), (22, 64699),

Gene: PhrankReynolds\_91 Start: 65049, Stop: 64852, Start Num: 13  
Candidate Starts for PhrankReynolds\_91:  
(Start: 13 @65049 has 280 MA's), (19, 64986),

Gene: PhrodoBaggins\_95 Start: 65424, Stop: 65227, Start Num: 13  
Candidate Starts for PhrodoBaggins\_95:  
(Start: 13 @65424 has 280 MA's), (19, 65361),

Gene: Phunky\_90 Start: 64926, Stop: 64729, Start Num: 13  
Candidate Starts for Phunky\_90:  
(Start: 13 @64926 has 280 MA's), (19, 64863),

Gene: Piglet\_0092 Start: 65542, Stop: 65345, Start Num: 13  
Candidate Starts for Piglet\_0092:  
(Start: 13 @65542 has 280 MA's), (19, 65479),

Gene: PinheadLarry\_92 Start: 65195, Stop: 64998, Start Num: 13  
Candidate Starts for PinheadLarry\_92:  
(Start: 13 @65195 has 280 MA's), (19, 65132),

Gene: Pinkman\_92 Start: 65267, Stop: 65070, Start Num: 13  
Candidate Starts for Pinkman\_92:  
(Start: 13 @65267 has 280 MA's), (19, 65204), (22, 65111),

Gene: Pipsqueak\_90 Start: 64879, Stop: 64682, Start Num: 13  
Candidate Starts for Pipsqueak\_90:  
(Start: 13 @64879 has 280 MA's), (19, 64816),

Gene: Placalicious\_91 Start: 65914, Stop: 65717, Start Num: 13  
Candidate Starts for Placalicious\_91:  
(Start: 13 @65914 has 280 MA's), (19, 65851),

Gene: Plmatters\_90 Start: 64869, Stop: 64672, Start Num: 13  
Candidate Starts for Plmatters\_90:  
(Start: 13 @64869 has 280 MA's), (19, 64806),

Gene: Podrick\_91 Start: 64957, Stop: 64760, Start Num: 13  
Candidate Starts for Podrick\_91:  
(Start: 13 @64957 has 280 MA's), (19, 64894), (22, 64801),

Gene: Pops\_90 Start: 65058, Stop: 64861, Start Num: 13

Candidate Starts for Pops\_90:  
(Start: 13 @65058 has 280 MA's), (19, 64995), (22, 64902),

Gene: Potter\_87 Start: 64878, Stop: 64681, Start Num: 13  
Candidate Starts for Potter\_87:  
(Start: 13 @64878 has 280 MA's), (19, 64815),

Gene: Prickles\_94 Start: 65246, Stop: 65049, Start Num: 13  
Candidate Starts for Prickles\_94:  
(Start: 13 @65246 has 280 MA's), (19, 65183), (22, 65090),

Gene: ProfessorX\_91 Start: 64915, Stop: 64718, Start Num: 13  
Candidate Starts for ProfessorX\_91:  
(Start: 13 @64915 has 280 MA's), (19, 64852),

Gene: Puhltonio\_89 Start: 65152, Stop: 64955, Start Num: 13  
Candidate Starts for Puhltonio\_89:  
(Start: 13 @65152 has 280 MA's), (19, 65089),

Gene: QueenBeane\_93 Start: 65201, Stop: 65004, Start Num: 13  
Candidate Starts for QueenBeane\_93:  
(Start: 13 @65201 has 280 MA's), (19, 65138),

Gene: Quisquilliae\_95 Start: 65212, Stop: 65015, Start Num: 13  
Candidate Starts for Quisquilliae\_95:  
(Start: 13 @65212 has 280 MA's), (19, 65149),

Gene: Qyrzula\_21 Start: 19105, Stop: 18914, Start Num: 13  
Candidate Starts for Qyrzula\_21:  
(8, 19279), (Start: 13 @19105 has 280 MA's), (18, 19045), (25, 18934),

Gene: RedMaple\_92 Start: 65813, Stop: 65616, Start Num: 13  
Candidate Starts for RedMaple\_92:  
(Start: 13 @65813 has 280 MA's), (19, 65750),

Gene: Rey\_173 Start: 81447, Stop: 81283, Start Num: 15  
Candidate Starts for Rey\_173:  
(10, 81489), (Start: 15 @81447 has 1 MA's), (16, 81435), (17, 81414), (21, 81345), (23, 81312),

Gene: Rhinoforte\_23 Start: 19136, Stop: 18945, Start Num: 13  
Candidate Starts for Rhinoforte\_23:  
(7, 19346), (8, 19310), (Start: 13 @19136 has 280 MA's), (18, 19076), (25, 18965),

Gene: Ricotta\_94 Start: 64897, Stop: 64700, Start Num: 13  
Candidate Starts for Ricotta\_94:  
(Start: 13 @64897 has 280 MA's), (19, 64834),

Gene: Riggan\_94 Start: 65382, Stop: 65185, Start Num: 13  
Candidate Starts for Riggan\_94:  
(Start: 13 @65382 has 280 MA's), (19, 65319), (22, 65226),

Gene: Rimu\_96 Start: 65361, Stop: 65164, Start Num: 13  
Candidate Starts for Rimu\_96:

(Start: 13 @65361 has 280 MA's), (19, 65298), (22, 65205),

Gene: Robyn\_95 Start: 65648, Stop: 65451, Start Num: 13

Candidate Starts for Robyn\_95:

(Start: 13 @65648 has 280 MA's), (19, 65585),

Gene: Roliet\_90 Start: 64241, Stop: 64044, Start Num: 13

Candidate Starts for Roliet\_90:

(Start: 13 @64241 has 280 MA's), (19, 64178), (22, 64085),

Gene: Roscoe\_92 Start: 65501, Stop: 65304, Start Num: 13

Candidate Starts for Roscoe\_92:

(Start: 13 @65501 has 280 MA's), (19, 65438), (22, 65345),

Gene: Roy17\_90 Start: 64607, Stop: 64410, Start Num: 13

Candidate Starts for Roy17\_90:

(Start: 13 @64607 has 280 MA's), (19, 64544),

Gene: SDcharge11\_92 Start: 64535, Stop: 64338, Start Num: 13

Candidate Starts for SDcharge11\_92:

(Start: 13 @64535 has 280 MA's), (19, 64472),

Gene: Sabella\_23 Start: 19022, Stop: 18831, Start Num: 13

Candidate Starts for Sabella\_23:

(8, 19196), (Start: 13 @19022 has 280 MA's), (18, 18962), (25, 18851),

Gene: Samaymay\_93 Start: 65201, Stop: 65004, Start Num: 13

Candidate Starts for Samaymay\_93:

(Start: 13 @65201 has 280 MA's), (19, 65138),

Gene: SassyCat97\_91 Start: 64869, Stop: 64672, Start Num: 13

Candidate Starts for SassyCat97\_91:

(Start: 13 @64869 has 280 MA's), (19, 64806),

Gene: Schadenfreude\_93 Start: 64918, Stop: 64721, Start Num: 13

Candidate Starts for Schadenfreude\_93:

(Start: 13 @64918 has 280 MA's), (19, 64855), (22, 64762),

Gene: Schueller\_92 Start: 65142, Stop: 64945, Start Num: 13

Candidate Starts for Schueller\_92:

(Start: 13 @65142 has 280 MA's), (19, 65079), (22, 64986),

Gene: Scoot17C\_93 Start: 64982, Stop: 64785, Start Num: 13

Candidate Starts for Scoot17C\_93:

(Start: 13 @64982 has 280 MA's), (19, 64919),

Gene: Serendipity\_92 Start: 65355, Stop: 65158, Start Num: 13

Candidate Starts for Serendipity\_92:

(Start: 13 @65355 has 280 MA's), (19, 65292),

Gene: Serpentine\_0095 Start: 65434, Stop: 65237, Start Num: 13

Candidate Starts for Serpentine\_0095:

(Start: 13 @65434 has 280 MA's), (19, 65371),

Gene: Sheila\_87 Start: 64447, Stop: 64250, Start Num: 13  
Candidate Starts for Sheila\_87:  
(Start: 13 @64447 has 280 MA's), (19, 64384), (22, 64291),

Gene: ShiVal\_92 Start: 64906, Stop: 64709, Start Num: 13  
Candidate Starts for ShiVal\_92:  
(Start: 13 @64906 has 280 MA's), (19, 64843),

Gene: Sigman\_92 Start: 64862, Stop: 64665, Start Num: 13  
Candidate Starts for Sigman\_92:  
(Start: 13 @64862 has 280 MA's), (19, 64799),

Gene: SilverBell\_94 Start: 65316, Stop: 65119, Start Num: 13  
Candidate Starts for SilverBell\_94:  
(Start: 13 @65316 has 280 MA's), (19, 65253),

Gene: Simielle\_93 Start: 64848, Stop: 64651, Start Num: 13  
Candidate Starts for Simielle\_93:  
(Start: 13 @64848 has 280 MA's), (19, 64785),

Gene: Skippy\_93 Start: 65277, Stop: 65080, Start Num: 13  
Candidate Starts for Skippy\_93:  
(Start: 13 @65277 has 280 MA's), (19, 65214),

Gene: Soile\_94 Start: 65402, Stop: 65205, Start Num: 13  
Candidate Starts for Soile\_94:  
(Start: 13 @65402 has 280 MA's), (19, 65339),

Gene: Solosis\_91 Start: 64870, Stop: 64673, Start Num: 13  
Candidate Starts for Solosis\_91:  
(Start: 13 @64870 has 280 MA's), (19, 64807),

Gene: Sophia\_91 Start: 64858, Stop: 64661, Start Num: 13  
Candidate Starts for Sophia\_91:  
(Start: 13 @64858 has 280 MA's), (19, 64795),

Gene: Soto\_90 Start: 64574, Stop: 64377, Start Num: 13  
Candidate Starts for Soto\_90:  
(Start: 13 @64574 has 280 MA's), (19, 64511), (22, 64418),

Gene: Spartan300\_92 Start: 65120, Stop: 64923, Start Num: 13  
Candidate Starts for Spartan300\_92:  
(Start: 13 @65120 has 280 MA's), (19, 65057), (22, 64964),

Gene: Squid\_92 Start: 65149, Stop: 64952, Start Num: 13  
Candidate Starts for Squid\_92:  
(Start: 13 @65149 has 280 MA's), (19, 65086),

Gene: Squiggle\_92 Start: 64876, Stop: 64679, Start Num: 13  
Candidate Starts for Squiggle\_92:  
(Start: 13 @64876 has 280 MA's), (19, 64813),

Gene: Struggle\_93 Start: 64974, Stop: 64777, Start Num: 13  
Candidate Starts for Struggle\_93:  
(Start: 13 @64974 has 280 MA's), (19, 64911),

Gene: Suffolk\_89 Start: 65047, Stop: 64850, Start Num: 13  
Candidate Starts for Suffolk\_89:  
(Start: 13 @65047 has 280 MA's), (19, 64984),

Gene: Surely\_93 Start: 65440, Stop: 65243, Start Num: 13  
Candidate Starts for Surely\_93:  
(Start: 13 @65440 has 280 MA's), (19, 65377),

Gene: Swiphy\_97 Start: 65424, Stop: 65227, Start Num: 13  
Candidate Starts for Swiphy\_97:  
(Start: 13 @65424 has 280 MA's), (19, 65361),

Gene: Swish\_94 Start: 65286, Stop: 65089, Start Num: 13  
Candidate Starts for Swish\_94:  
(Start: 13 @65286 has 280 MA's), (19, 65223), (22, 65130),

Gene: TA17A\_23 Start: 19016, Stop: 18825, Start Num: 13  
Candidate Starts for TA17A\_23:  
(7, 19226), (8, 19190), (Start: 13 @19016 has 280 MA's), (18, 18956), (25, 18845),

Gene: TallGrassMM\_92 Start: 64935, Stop: 64738, Start Num: 13  
Candidate Starts for TallGrassMM\_92:  
(Start: 13 @64935 has 280 MA's), (19, 64872),

Gene: Telesworld\_91 Start: 65009, Stop: 64812, Start Num: 13  
Candidate Starts for Telesworld\_91:  
(Start: 13 @65009 has 280 MA's), (19, 64946),

Gene: Thora\_91 Start: 65389, Stop: 65192, Start Num: 13  
Candidate Starts for Thora\_91:  
(Start: 13 @65389 has 280 MA's), (19, 65326),

Gene: ThreeOh3D2\_94 Start: 65543, Stop: 65346, Start Num: 13  
Candidate Starts for ThreeOh3D2\_94:  
(Start: 13 @65543 has 280 MA's), (19, 65480),

Gene: Thunderbird\_93 Start: 65131, Stop: 64934, Start Num: 13  
Candidate Starts for Thunderbird\_93:  
(Start: 13 @65131 has 280 MA's), (19, 65068),

Gene: Timmi\_91 Start: 64906, Stop: 64709, Start Num: 13  
Candidate Starts for Timmi\_91:  
(Start: 13 @64906 has 280 MA's), (19, 64843),

Gene: Tinciduntolum\_24 Start: 19138, Stop: 18947, Start Num: 13  
Candidate Starts for Tinciduntolum\_24:  
(7, 19348), (8, 19312), (Start: 13 @19138 has 280 MA's), (18, 19078), (25, 18967),

Gene: TomBombadil\_93 Start: 65432, Stop: 65235, Start Num: 13

Candidate Starts for TomBombadil\_93:  
(Start: 13 @65432 has 280 MA's), (19, 65369),

Gene: Tomlarah\_93 Start: 65739, Stop: 65542, Start Num: 13  
Candidate Starts for Tomlarah\_93:  
(Start: 13 @65739 has 280 MA's), (19, 65676),

Gene: Toni\_92 Start: 65335, Stop: 65138, Start Num: 13  
Candidate Starts for Toni\_92:  
(Start: 13 @65335 has 280 MA's), (19, 65272),

Gene: Tres\_23 Start: 19019, Stop: 18828, Start Num: 13  
Candidate Starts for Tres\_23:  
(7, 19229), (8, 19193), (Start: 13 @19019 has 280 MA's), (18, 18959), (25, 18848),

Gene: Trypo\_93 Start: 65603, Stop: 65406, Start Num: 13  
Candidate Starts for Trypo\_93:  
(Start: 13 @65603 has 280 MA's), (19, 65540),

Gene: Typha\_116 Start: 69405, Stop: 69581, Start Num: 14  
Candidate Starts for Typha\_116:  
(1, 69012), (2, 69024), (3, 69042), (Start: 14 @69405 has 2 MA's),

Gene: TyrionL\_93 Start: 64965, Stop: 64768, Start Num: 13  
Candidate Starts for TyrionL\_93:  
(Start: 13 @64965 has 280 MA's), (19, 64902), (22, 64809),

Gene: UAch1\_94 Start: 65233, Stop: 65036, Start Num: 13  
Candidate Starts for UAch1\_94:  
(Start: 13 @65233 has 280 MA's), (19, 65170),

Gene: Ubuntu\_4 Start: 1826, Stop: 1617, Start Num: 12  
Candidate Starts for Ubuntu\_4:  
(Start: 12 @1826 has 22 MA's), (21, 1685), (22, 1655),

Gene: UncleHowie\_89 Start: 64567, Stop: 64370, Start Num: 13  
Candidate Starts for UncleHowie\_89:  
(Start: 13 @64567 has 280 MA's), (19, 64504),

Gene: Usavi\_93 Start: 65729, Stop: 65532, Start Num: 13  
Candidate Starts for Usavi\_93:  
(Start: 13 @65729 has 280 MA's), (19, 65666), (22, 65573),

Gene: Vaishali24\_94 Start: 65329, Stop: 65132, Start Num: 13  
Candidate Starts for Vaishali24\_94:  
(Start: 13 @65329 has 280 MA's), (19, 65266),

Gene: Valjean\_91 Start: 65123, Stop: 64926, Start Num: 13  
Candidate Starts for Valjean\_91:  
(Start: 13 @65123 has 280 MA's), (19, 65060),

Gene: Vaticameos\_90 Start: 63439, Stop: 63242, Start Num: 13  
Candidate Starts for Vaticameos\_90:

(Start: 13 @63439 has 280 MA's), (19, 63376),

Gene: Veritas\_92 Start: 65046, Stop: 64849, Start Num: 13

Candidate Starts for Veritas\_92:

(Start: 13 @65046 has 280 MA's), (19, 64983),

Gene: Vic9\_24 Start: 19461, Stop: 19270, Start Num: 13

Candidate Starts for Vic9\_24:

(7, 19671), (8, 19635), (Start: 13 @19461 has 280 MA's), (18, 19401), (25, 19290),

Gene: Virapocalypse\_94 Start: 65232, Stop: 65035, Start Num: 13

Candidate Starts for Virapocalypse\_94:

(Start: 13 @65232 has 280 MA's), (19, 65169),

Gene: Virgeve\_91 Start: 64851, Stop: 64654, Start Num: 13

Candidate Starts for Virgeve\_91:

(Start: 13 @64851 has 280 MA's), (19, 64788),

Gene: Vista\_92 Start: 65045, Stop: 64848, Start Num: 13

Candidate Starts for Vista\_92:

(Start: 13 @65045 has 280 MA's), (19, 64982),

Gene: Vivaldi\_93 Start: 65310, Stop: 65113, Start Num: 13

Candidate Starts for Vivaldi\_93:

(Start: 13 @65310 has 280 MA's), (19, 65247),

Gene: Vortex\_91 Start: 65151, Stop: 64954, Start Num: 13

Candidate Starts for Vortex\_91:

(Start: 13 @65151 has 280 MA's), (19, 65088),

Gene: Wallhey\_94 Start: 65150, Stop: 64953, Start Num: 13

Candidate Starts for Wallhey\_94:

(Start: 13 @65150 has 280 MA's), (19, 65087),

Gene: Waterdiva\_94 Start: 65417, Stop: 65220, Start Num: 13

Candidate Starts for Waterdiva\_94:

(Start: 13 @65417 has 280 MA's), (19, 65354),

Gene: Webster2\_4 Start: 1826, Stop: 1617, Start Num: 12

Candidate Starts for Webster2\_4:

(Start: 12 @1826 has 22 MA's), (21, 1685), (22, 1655),

Gene: Weher20\_90 Start: 65489, Stop: 65292, Start Num: 13

Candidate Starts for Weher20\_90:

(Start: 13 @65489 has 280 MA's), (19, 65426),

Gene: West99\_23 Start: 19139, Stop: 18948, Start Num: 13

Candidate Starts for West99\_23:

(7, 19349), (8, 19313), (Start: 13 @19139 has 280 MA's), (18, 19079), (25, 18968),

Gene: Windsor\_93 Start: 65433, Stop: 65236, Start Num: 13

Candidate Starts for Windsor\_93:

(Start: 13 @65433 has 280 MA's), (19, 65370), (20, 65349),

Gene: Wishmaker\_4 Start: 1826, Stop: 1617, Start Num: 12  
Candidate Starts for Wishmaker\_4:  
(Start: 12 @1826 has 22 MA's), (21, 1685), (22, 1655),

Gene: Xavier\_92 Start: 65044, Stop: 64847, Start Num: 13  
Candidate Starts for Xavier\_92:  
(Start: 13 @65044 has 280 MA's), (19, 64981),

Gene: Yoshand\_94 Start: 65269, Stop: 65072, Start Num: 13  
Candidate Starts for Yoshand\_94:  
(Start: 13 @65269 has 280 MA's), (19, 65206),

Gene: YouGoGlencoco\_93 Start: 65159, Stop: 64962, Start Num: 13  
Candidate Starts for YouGoGlencoco\_93:  
(Start: 13 @65159 has 280 MA's), (19, 65096),

Gene: Zaider\_94 Start: 65534, Stop: 65337, Start Num: 13  
Candidate Starts for Zaider\_94:  
(Start: 13 @65534 has 280 MA's), (19, 65471),

Gene: Zelda\_93 Start: 65490, Stop: 65293, Start Num: 13  
Candidate Starts for Zelda\_93:  
(Start: 13 @65490 has 280 MA's), (19, 65427),

Gene: Zonia\_93 Start: 65600, Stop: 65403, Start Num: 13  
Candidate Starts for Zonia\_93:  
(Start: 13 @65600 has 280 MA's), (19, 65537), (22, 65444),