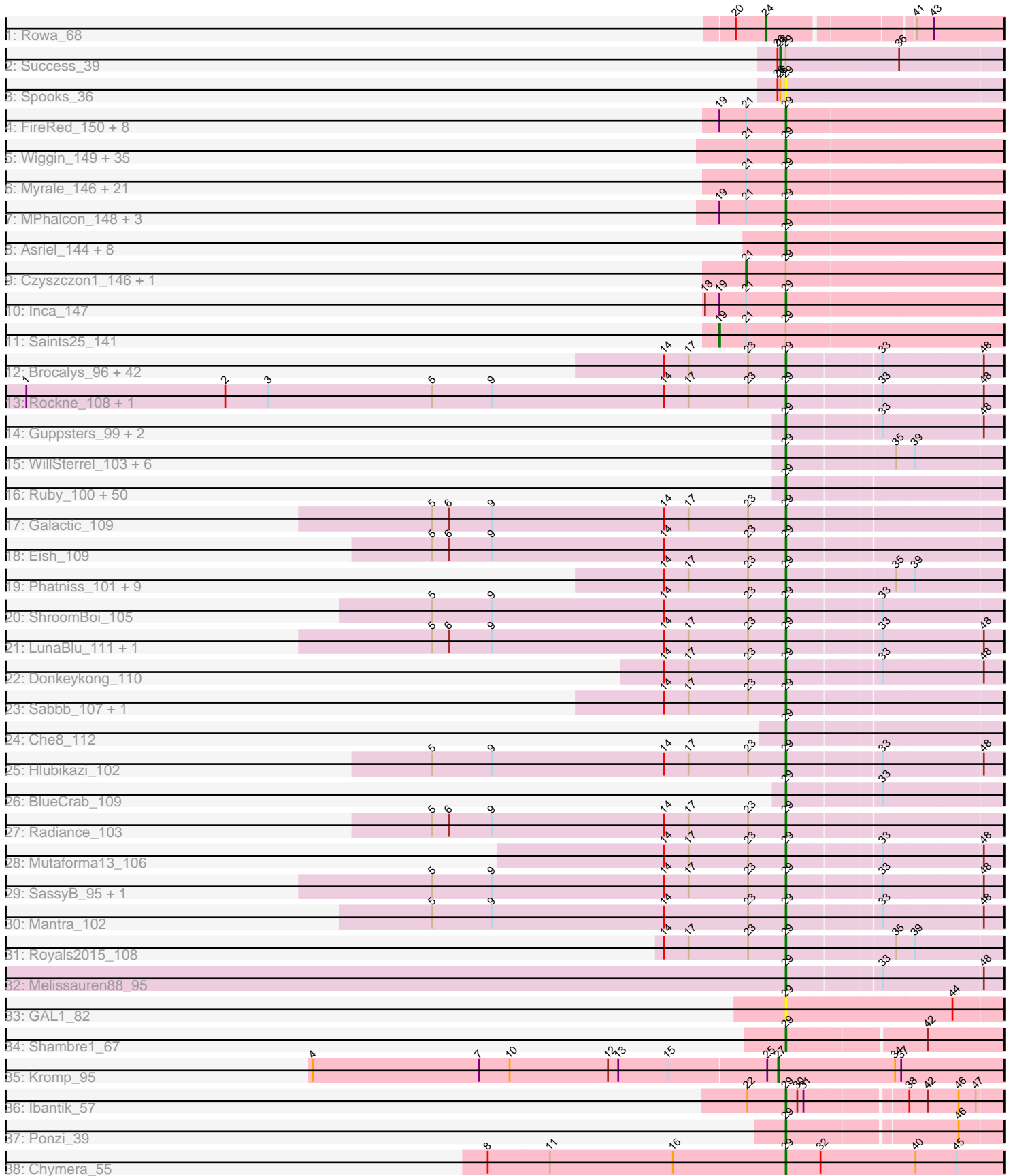


Pham 202663



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 202663 Report

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

Pham number 202663 has 227 members, 5 are drafts.

Phages represented in each track:

- Track 1 : Rowa\_68
- Track 2 : Success\_39
- Track 3 : Spooks\_36
- Track 4 : FireRed\_150, Thresher\_148, Highbury\_141, Manda\_149, Nala\_149, PhatBacter\_150, Command613\_149, BaboJay\_146, Ukulele\_143
- Track 5 : Wiggin\_149, Cactus\_154, Sotrice96\_151, BadStone\_145, SophKB\_144, Icee\_146, Rimmer\_145, Goldilocks\_152, Youngblood\_150, Tuco\_150, AmericanBeauty\_149, Contagion\_142, HufflyPuff\_148, IHOP\_151, Willez\_144, Kanye\_142, Easy2Say\_148, Kimchi\_151, Holt\_152, Argent26\_150, Bench\_149, Lilpickle\_146, Elite2014\_146, RiverMonster\_146, Dumbo\_149, StolenFromERC\_148, Adnama\_150, Gage\_137, ChosenOne\_147, Phaux\_147, Stank\_150, GoldenSpark\_150, Maxxinsta\_148, Quallification\_146, ABCat\_145, Gemini\_151
- Track 6 : Myrale\_146, ShereKhan\_145, Murphy\_148, OrionPax\_144, Miniwave\_140, DoctorDiddles\_145, Teaspoon\_130, NoSleep\_145, MadamMonkfish\_148, Nimrod\_145, JeTaime\_144, Stark\_143, Emmina\_148, Cookies\_148, TBrady12\_151, Paperbeatsrock\_144, ShamWow\_145, BigBubba\_149, Phaja\_151, Tarkin\_144, Phrux\_143, Buck\_148
- Track 7 : MPhalcon\_148, MISSy\_147, Hopey\_144, Murica\_149
- Track 8 : Asriel\_144, Balomoji\_146, Flypotenuse\_142, Glexan\_150, Traaww1\_144, Pat3\_147, Harella\_153, Barbarian\_146, Hoonter\_148
- Track 9 : Czyszczon1\_146, Marshmallow\_149
- Track 10 : Inca\_147
- Track 11 : Saints25\_141
- Track 12 : Brocalys\_96, CaptainTrips\_107, ShowerHandel\_107, PhesterPotato\_109, MinionDave\_103, Gorge\_103, DLane\_105, Moonbeam\_107, Gandolph\_104, MilanaBonita\_98, DillTech15\_111, Filuzino\_105, GUmbie\_104, Cabrinians\_101, SuperGrey\_103, Ms6\_107, Ardmore\_88, Rita\_104, Philus\_108, StAnnes\_110, Pippy\_103, KingMidas\_105, Florinda\_117, Hamulus\_105, SiSi\_99, FreddyB\_113, Tweety\_109, James\_108, Fastidio\_108, Whouxphf\_108, Phalconet\_106, Krakatau\_97, Batiatus\_105, NormanBulbieJr\_102, Taj\_110, Wee\_109, Bipolar\_106, EleanorGeorge\_108, Emma\_109, Kenuha5\_96, Scottish\_105, Veteran\_94, Akhila\_99
- Track 13 : Rockne\_108, PMC\_104
- Track 14 : Guppsters\_99, Zizzle\_108, DoRead\_112
- Track 15 : WillSterrel\_103, Mahavrat\_98, Maravista\_102, Juniper1\_98, Phanphagia\_109, IrishSherpFalk\_105, Shauna1\_106

- Track 16 : Ruby\_100, VRedHorse\_105, Karhdo\_100, Mattes\_105, Clifton\_96, BodEinwohner17\_116, Llama\_111, Wachhund\_101, ByChance\_95, Ochi17\_110, Jinglebell\_111, Seabastian\_111, BobaPhett\_108, Crumble\_99, MisterCuddles\_104, Inventum\_102, ShiLan\_107, Nimbo\_96, Byougenkin\_101, OldBen\_101, Leperchaun\_106, JoeyJr\_107, PHappiness\_104, Estave1\_112, MadMen\_109, Lizziana\_105, Deb65\_97, DRBy19\_104, Jarcob\_107, Kersh\_107, Sassafras\_106, OfUltron\_111, Polka14\_108, RitaG\_103, SwagPigglett\_106, Ibhubesi\_103, Daenerys\_102, Priscilla\_105, Phasih\_100, Eradicator\_95, RedBird\_105, Sparkdehlily\_111, TDanisky\_112, Hades\_102, Girr\_103, AlpineSix\_102, Spoonbill\_104, Geralt\_97, KristaRAM\_113, Modragons\_107, Martik\_103
- Track 17 : Galactic\_109
- Track 18 : Eish\_109
- Track 19 : Phatniss\_101, Chuckly\_102, Bubbles123\_100, Dante\_104, Llij\_99, Whatsapiecost\_99, Burwell21\_99, Minnie\_99, Zerg\_103, Sandalphon\_103
- Track 20 : ShroomBoi\_105
- Track 21 : LunaBlu\_111, GigiOuiOui\_99
- Track 22 : Donkeykong\_110
- Track 23 : Sabbb\_107, Pacc40\_101
- Track 24 : Che8\_112
- Track 25 : Hlubikazi\_102
- Track 26 : BlueCrab\_109
- Track 27 : Radiance\_103
- Track 28 : Mutaforma13\_106
- Track 29 : SassyB\_95, PopTart\_95
- Track 30 : Mantra\_102
- Track 31 : Royals2015\_108
- Track 32 : Melissauren88\_95
- Track 33 : GAL1\_82
- Track 34 : Shambre1\_67
- Track 35 : Kromp\_95
- Track 36 : Ibantik\_57
- Track 37 : Ponzi\_39
- Track 38 : Chymera\_55

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

The start number called the most often in the published annotations is 29, it was called in 216 of the 222 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- ABCat\_145, Adnama\_150, Akhila\_99, AlpineSix\_102, AmericanBeauty\_149, Ardmore\_88, Argent26\_150, Asriel\_144, BaboJay\_146, BadStone\_145, Balomoji\_146, Barbarian\_146, Batiatus\_105, Bench\_149, BigBubba\_149, Bipolar\_106, BlueCrab\_109, BobaPhett\_108, BodEinwohner17\_116, Brocalys\_96, Bubbles123\_100, Buck\_148, Burwell21\_99, ByChance\_95, Byougenkin\_101, Cabrinians\_101, Cactus\_154, CaptainTrips\_107, Che8\_112, ChosenOne\_147, Chuckly\_102, Chymera\_55, Clifton\_96, Command613\_149, Contagion\_142, Cookies\_148, Crumble\_99, DLane\_105, DRBy19\_104, Daenerys\_102, Dante\_104, Deb65\_97, DillTech15\_111, DoRead\_112, DoctorDiddles\_145, Donkeykong\_110, Dumbo\_149, Easy2Say\_148, Eish\_109, EleanorGeorge\_108, Elite2014\_146,

Emma\_109, Emmina\_148, Eradicator\_95, Estave1\_112, Fastidio\_108, Filuzino\_105, FireRed\_150, Florinda\_117, Flypotenuse\_142, FreddyB\_113, GAL1\_82, GUmbie\_104, Gage\_137, Galactic\_109, Gandolph\_104, Gemini\_151, Geralt\_97, GigiOuiOui\_99, Girr\_103, Glexan\_150, GoldenSpark\_150, Goldilocks\_152, Gorge\_103, Guppsters\_99, Hades\_102, Hamulus\_105, Harella\_153, Highbury\_141, Hlubikazi\_102, Holt\_152, Hoonter\_148, Hopey\_144, HufflyPuff\_148, IHOP\_151, Ibantik\_57, Ibhubesi\_103, Icee\_146, Inca\_147, Inventum\_102, IrishSherpFalk\_105, James\_108, Jarcob\_107, JeTaimé\_144, Jinglebell\_111, JoeyJr\_107, Juniper1\_98, Kanye\_142, Karhdo\_100, Kenuha5\_96, Kersh\_107, Kimchi\_151, KingMidas\_105, Krakatau\_97, KristaRAM\_113, Leperchaun\_106, Lilpickle\_146, Lizziana\_105, Llama\_111, Llij\_99, LunaBlu\_111, MISSy\_147, MPhalcon\_148, MadMen\_109, MadamMonkfish\_148, Mahavrat\_98, Manda\_149, Mantra\_102, Maravista\_102, Martik\_103, Mattes\_105, Maxxinista\_148, Melissau88\_95, MilanaBonita\_98, MinionDave\_103, Miniwave\_140, Minnie\_99, MisterCuddles\_104, Modragons\_107, Moonbeam\_107, Ms6\_107, Murica\_149, Murphy\_148, Mutaforma13\_106, Myrale\_146, Nala\_149, Nimbo\_96, Nimrod\_145, NoSleep\_145, NormanBulbieJr\_102, Ochi17\_110, OfUltron\_111, OldBen\_101, OrionPax\_144, PHappiness\_104, PMC\_104, Pacc40\_101, Paperbeatsrock\_144, Pat3\_147, Phaja\_151, Phalconet\_106, Phanphagia\_109, Phasih\_100, PhatBacter\_150, Phatniss\_101, Phaux\_147, PhesterPhotato\_109, Philus\_108, Phrux\_143, Pippy\_103, Polka14\_108, Ponzi\_39, PopTart\_95, Priscilla\_105, Quallification\_146, Radiance\_103, RedBird\_105, Rimmer\_145, RitaG\_103, Rita\_104, RiverMonster\_146, Rockne\_108, Royals2015\_108, Ruby\_100, Sabbb\_107, Sandalphon\_103, Sassafras\_106, SassyB\_95, Scottish\_105, Seabastian\_111, ShamWow\_145, Shambre1\_67, Shauna1\_106, ShereKhan\_145, ShiLan\_107, ShowerHandel\_107, ShroomBoi\_105, SiSi\_99, SophKB\_144, Sotrice96\_151, Sparkdehlily\_111, Spooks\_36, Spoonbill\_104, StAnnes\_110, Stank\_150, Stark\_143, StolenFromERC\_148, SuperGrey\_103, SwagPiggett\_106, TBrady12\_151, TDanisky\_112, Taj\_110, Tarkin\_144, Teaspoon\_130, Thresher\_148, Traaww1\_144, Tuco\_150, Tweety\_109, Ukulele\_143, VRedHorse\_105, Veteran\_94, Wachhund\_101, Wee\_109, Whatsapiecost\_99, Whouxphf\_108, Wiggin\_149, WillSterrel\_103, Willez\_144, Youngblood\_150, Zerg\_103, Zizzle\_108,

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

- Czyszczon1\_146, Marshmallow\_149, Saints25\_141, Success\_39,

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

- Kromp\_95, Rowa\_68,

### Summary by start number:

Start 19:

- Found in 15 of 227 ( 6.6% ) of genes in pham
- Manual Annotations of this start: 1 of 222
- Called 6.7% of time when present
- Phage (with cluster) where this start called: Saints25\_141 (E),

Start 21:

- Found in 75 of 227 ( 33.0% ) of genes in pham
- Manual Annotations of this start: 2 of 222
- Called 2.7% of time when present
- Phage (with cluster) where this start called: Czyszczon1\_146 (E), Marshmallow\_149 (E),

Start 24:

- Found in 1 of 227 ( 0.4% ) of genes in pham
- Manual Annotations of this start: 1 of 222
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Rowa\_68 (BL),

Start 27:

- Found in 1 of 227 ( 0.4% ) of genes in pham
- Manual Annotations of this start: 1 of 222
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Kromp\_95 (singleton),

Start 28:

- Found in 2 of 227 ( 0.9% ) of genes in pham
- Manual Annotations of this start: 1 of 222
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Success\_39 (BT),

Start 29:

- Found in 225 of 227 ( 99.1% ) of genes in pham
- Manual Annotations of this start: 216 of 222
- Called 98.2% of time when present
- Phage (with cluster) where this start called: ABCat\_145 (E), Adnama\_150 (E), Akhila\_99 (F1), AlpineSix\_102 (F1), AmericanBeauty\_149 (E), Ardmore\_88 (F1), Argent26\_150 (E), Asriel\_144 (E), BaboJay\_146 (E), BadStone\_145 (E), Balomoji\_146 (E), Barbarian\_146 (E), Batiatus\_105 (F1), Bench\_149 (E), BigBubba\_149 (E), Bipolar\_106 (F1), BlueCrab\_109 (F1), BobaPhett\_108 (F1), BodEinwohner17\_116 (F1), Brocalys\_96 (F1), Bubbles123\_100 (F1), Buck\_148 (E), Burwell21\_99 (F1), ByChance\_95 (F1), Byougenkin\_101 (F1), Cabrinians\_101 (F1), Cactus\_154 (E), CaptainTrips\_107 (F1), Che8\_112 (F1), ChosenOne\_147 (E), Chuckly\_102 (F1), Chymera\_55 (singleton), Clifton\_96 (F1), Command613\_149 (E), Contagion\_142 (E), Cookies\_148 (E), Crumble\_99 (F1), DLane\_105 (F1), DRBy19\_104 (F1), Daenerys\_102 (F1), Dante\_104 (F1), Deb65\_97 (F1), DillTech15\_111 (F1), DoRead\_112 (F1), DoctorDiddles\_145 (E), Donkeykong\_110 (F1), Dumbo\_149 (E), Easy2Say\_148 (E), Eish\_109 (F1), EleanorGeorge\_108 (F1), Elite2014\_146 (E), Emma\_109 (F1), Emmina\_148 (E), Eradicator\_95 (F1), Estave1\_112 (F1), Fastidio\_108 (F1), Filuzino\_105 (F1), FireRed\_150 (E), Florinda\_117 (F1), Flypotenuse\_142 (E), FreddyB\_113 (F1), GAL1\_82 (singleton), GUmbie\_104 (F1), Gage\_137 (E), Galactic\_109 (F1), Gandolph\_104 (F1), Gemini\_151 (E), Geralt\_97 (F1), GigiOuiOui\_99 (F1), Girr\_103 (F1), Glexan\_150 (E), GoldenSpark\_150 (E), Goldilocks\_152 (E), Gorge\_103 (F1), Guppsters\_99 (F1), Hades\_102 (F1), Hamulus\_105 (F1), Harella\_153 (E), Highbury\_141 (E), Hlubikazi\_102 (F1), Holt\_152 (E), Hoonter\_148 (E), Hopey\_144 (E), HufflyPuff\_148 (E), IHOP\_151 (E), Ibantik\_57 (singleton), Ibhubesi\_103 (F1), Icee\_146 (E), Inca\_147 (E), Inventum\_102 (F1), IrishSherpFalk\_105 (F1), James\_108 (F1), Jarcob\_107 (F1), JeTaimé\_144 (E), Jinglebell\_111 (F1), JoeyJr\_107 (F1), Juniper1\_98 (F1), Kanye\_142 (E), Karhdo\_100 (F1), Kenuha5\_96 (F1), Kersh\_107 (F1), Kimchi\_151 (E), KingMidas\_105 (F1), Krakatau\_97 (F1), KristaRAM\_113 (F1), Leperchaun\_106 (F1), Lilpickle\_146 (E), Lizziana\_105 (F1), Llama\_111 (F1), Llij\_99 (F1), LunaBlu\_111 (F1), MISSy\_147 (E), MPhalcon\_148 (E), MadMen\_109 (F1), MadamMonkfish\_148 (E), Mahavrat\_98 (F1), Manda\_149 (E), Mantra\_102 (F1), Maravista\_102 (F1), Martik\_103 (F1), Mattes\_105 (F1), Maxxinista\_148 (E), Melissauren88\_95 (F1),

MilanaBonita\_98 (F1), MinionDave\_103 (F1), Miniwave\_140 (E), Minnie\_99 (F1), MisterCuddles\_104 (F1), Modragons\_107 (F1), Moonbeam\_107 (F1), Ms6\_107 (F1), Murica\_149 (E), Murphy\_148 (E), Mutaforma13\_106 (F1), Myrale\_146 (E), Nala\_149 (E), Nimbo\_96 (F1), Nimrod\_145 (E), NoSleep\_145 (E), NormanBulbieJr\_102 (F1), Ochi17\_110 (F1), OfUltron\_111 (F1), OldBen\_101 (F1), OrionPax\_144 (E), PHappiness\_104 (F1), PMC\_104 (F1), Pacc40\_101 (F1), Paperbeatsrock\_144 (E), Pat3\_147 (E), Phaja\_151 (E), Phalconet\_106 (F1), Phanphagia\_109 (F1), Phasih\_100 (F1), PhatBacter\_150 (E), Phatniss\_101 (F1), Phaux\_147 (E), PhesterPhotato\_109 (F1), Philus\_108 (F1), Phrux\_143 (E), Pippy\_103 (F1), Polka14\_108 (F1), Ponzi\_39 (singleton), PopTart\_95 (F1), Priscilla\_105 (F1), Quallification\_146 (E), Radiance\_103 (F1), RedBird\_105 (F1), Rimmer\_145 (E), RitaG\_103 (F1), Rita\_104 (F1), RiverMonster\_146 (E), Rockne\_108 (F1), Royals2015\_108 (F1), Ruby\_100 (F1), Sabbb\_107 (F1), Sandalphon\_103 (F1), Sassafras\_106 (F1), SassyB\_95 (F1), Scottish\_105 (F1), Seabastian\_111 (F1), ShamWow\_145 (E), Shambre1\_67 (singleton), Shauna1\_106 (F1), ShereKhan\_145 (E), ShiLan\_107 (F1), ShowerHandel\_107 (F1), ShroomBoi\_105 (F1), SiSi\_99 (F1), SophKB\_144 (E), Sotrice96\_151 (E), Sparkdehlily\_111 (F1), Spooks\_36 (BT), Spoonbill\_104 (F1), StAnnes\_110 (F1), Stank\_150 (E), Stark\_143 (E), StolenFromERC\_148 (E), SuperGrey\_103 (F1), SwagPigglett\_106 (F1), TBrady12\_151 (E), TDanisky\_112 (F1), Taj\_110 (F1), Tarkin\_144 (E), Teaspoon\_130 (E), Thresher\_148 (E), Traaww1\_144 (E), Tuco\_150 (E), Tweety\_109 (F1), Ukulele\_143 (E), VRedHorse\_105 (F1), Veteran\_94 (F1), Wachhund\_101 (F1), Wee\_109 (F1), Whatsapiecost\_99 (F1), Whouxphf\_108 (F1), Wiggin\_149 (E), WillSterrel\_103 (F1), Willez\_144 (E), Youngblood\_150 (E), Zerg\_103 (F1), Zizzle\_108 (F1),

### **Summary by clusters:**

There are 5 clusters represented in this pham: BT, F1, singleton, E, BL,

Info for manual annotations of cluster BL:

- Start number 24 was manually annotated 1 time for cluster BL.

Info for manual annotations of cluster BT:

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

Info for manual annotations of cluster E:

- Start number 19 was manually annotated 1 time for cluster E.
- Start number 21 was manually annotated 2 times for cluster E.
- Start number 29 was manually annotated 81 times for cluster E.

Info for manual annotations of cluster F1:

- Start number 29 was manually annotated 131 times for cluster F1.

### **Gene Information:**

Gene: ABCat\_145 Start: 75550, Stop: 75897, Start Num: 29

Candidate Starts for ABCat\_145:

(Start: 21 @75493 has 2 MA's), (Start: 29 @75550 has 216 MA's),

Gene: Adnama\_150 Start: 74627, Stop: 74974, Start Num: 29

Candidate Starts for Adnama\_150:  
(Start: 21 @74570 has 2 MA's), (Start: 29 @74627 has 216 MA's),

Gene: Akhila\_99 Start: 55783, Stop: 56109, Start Num: 29  
Candidate Starts for Akhila\_99:  
(14, 55609), (17, 55645), (23, 55732), (Start: 29 @55783 has 216 MA's), (33, 55906), (48, 56041),

Gene: AlpineSix\_102 Start: 56250, Stop: 56576, Start Num: 29  
Candidate Starts for AlpineSix\_102:  
(Start: 29 @56250 has 216 MA's),

Gene: AmericanBeauty\_149 Start: 74669, Stop: 75016, Start Num: 29  
Candidate Starts for AmericanBeauty\_149:  
(Start: 21 @74612 has 2 MA's), (Start: 29 @74669 has 216 MA's),

Gene: Ardmore\_88 Start: 51672, Stop: 51998, Start Num: 29  
Candidate Starts for Ardmore\_88:  
(14, 51498), (17, 51534), (23, 51621), (Start: 29 @51672 has 216 MA's), (33, 51795), (48, 51930),

Gene: Argent26\_150 Start: 74551, Stop: 74898, Start Num: 29  
Candidate Starts for Argent26\_150:  
(Start: 21 @74494 has 2 MA's), (Start: 29 @74551 has 216 MA's),

Gene: Asriel\_144 Start: 74013, Stop: 74360, Start Num: 29  
Candidate Starts for Asriel\_144:  
(Start: 29 @74013 has 216 MA's),

Gene: BaboJay\_146 Start: 75796, Stop: 76143, Start Num: 29  
Candidate Starts for BaboJay\_146:  
(Start: 19 @75700 has 1 MA's), (Start: 21 @75739 has 2 MA's), (Start: 29 @75796 has 216 MA's),

Gene: BadStone\_145 Start: 75098, Stop: 75445, Start Num: 29  
Candidate Starts for BadStone\_145:  
(Start: 21 @75041 has 2 MA's), (Start: 29 @75098 has 216 MA's),

Gene: Balomoji\_146 Start: 75838, Stop: 76185, Start Num: 29  
Candidate Starts for Balomoji\_146:  
(Start: 29 @75838 has 216 MA's),

Gene: Barbarian\_146 Start: 74013, Stop: 74360, Start Num: 29  
Candidate Starts for Barbarian\_146:  
(Start: 29 @74013 has 216 MA's),

Gene: Batiatus\_105 Start: 57269, Stop: 57595, Start Num: 29  
Candidate Starts for Batiatus\_105:  
(14, 57095), (17, 57131), (23, 57218), (Start: 29 @57269 has 216 MA's), (33, 57392), (48, 57527),

Gene: Bench\_149 Start: 75511, Stop: 75858, Start Num: 29  
Candidate Starts for Bench\_149:  
(Start: 21 @75454 has 2 MA's), (Start: 29 @75511 has 216 MA's),

Gene: BigBubba\_149 Start: 74425, Stop: 74772, Start Num: 29  
Candidate Starts for BigBubba\_149:

(Start: 21 @74368 has 2 MA's), (Start: 29 @74425 has 216 MA's),

Gene: Bipolar\_106 Start: 58515, Stop: 58841, Start Num: 29

Candidate Starts for Bipolar\_106:

(14, 58341), (17, 58377), (23, 58464), (Start: 29 @58515 has 216 MA's), (33, 58638), (48, 58773),

Gene: BlueCrab\_109 Start: 58669, Stop: 58995, Start Num: 29

Candidate Starts for BlueCrab\_109:

(Start: 29 @58669 has 216 MA's), (33, 58792),

Gene: BobaPhett\_108 Start: 59318, Stop: 59644, Start Num: 29

Candidate Starts for BobaPhett\_108:

(Start: 29 @59318 has 216 MA's),

Gene: BodEinwohner17\_116 Start: 59725, Stop: 60051, Start Num: 29

Candidate Starts for BodEinwohner17\_116:

(Start: 29 @59725 has 216 MA's),

Gene: Brocalys\_96 Start: 54283, Stop: 54609, Start Num: 29

Candidate Starts for Brocalys\_96:

(14, 54109), (17, 54145), (23, 54232), (Start: 29 @54283 has 216 MA's), (33, 54406), (48, 54541),

Gene: Bubbles123\_100 Start: 56967, Stop: 57311, Start Num: 29

Candidate Starts for Bubbles123\_100:

(14, 56793), (17, 56829), (23, 56916), (Start: 29 @56967 has 216 MA's), (35, 57111), (39, 57135),

Gene: Buck\_148 Start: 76107, Stop: 76454, Start Num: 29

Candidate Starts for Buck\_148:

(Start: 21 @76050 has 2 MA's), (Start: 29 @76107 has 216 MA's),

Gene: Burwell21\_99 Start: 56858, Stop: 57202, Start Num: 29

Candidate Starts for Burwell21\_99:

(14, 56684), (17, 56720), (23, 56807), (Start: 29 @56858 has 216 MA's), (35, 57002), (39, 57026),

Gene: ByChance\_95 Start: 52655, Stop: 52981, Start Num: 29

Candidate Starts for ByChance\_95:

(Start: 29 @52655 has 216 MA's),

Gene: Byougenkin\_101 Start: 54217, Stop: 54543, Start Num: 29

Candidate Starts for Byougenkin\_101:

(Start: 29 @54217 has 216 MA's),

Gene: Cabrinians\_101 Start: 56202, Stop: 56528, Start Num: 29

Candidate Starts for Cabrinians\_101:

(14, 56028), (17, 56064), (23, 56151), (Start: 29 @56202 has 216 MA's), (33, 56325), (48, 56460),

Gene: Cactus\_154 Start: 75022, Stop: 75369, Start Num: 29

Candidate Starts for Cactus\_154:

(Start: 21 @74965 has 2 MA's), (Start: 29 @75022 has 216 MA's),

Gene: CaptainTrips\_107 Start: 56860, Stop: 57186, Start Num: 29

Candidate Starts for CaptainTrips\_107:

(14, 56686), (17, 56722), (23, 56809), (Start: 29 @56860 has 216 MA's), (33, 56983), (48, 57118),



Gene: Che8\_112 Start: 58974, Stop: 59300, Start Num: 29

Candidate Starts for Che8\_112:

(Start: 29 @58974 has 216 MA's),

Gene: ChosenOne\_147 Start: 74389, Stop: 74736, Start Num: 29

Candidate Starts for ChosenOne\_147:

(Start: 21 @74332 has 2 MA's), (Start: 29 @74389 has 216 MA's),

Gene: Chuckly\_102 Start: 53949, Stop: 54293, Start Num: 29

Candidate Starts for Chuckly\_102:

(14, 53775), (17, 53811), (23, 53898), (Start: 29 @53949 has 216 MA's), (35, 54093), (39, 54117),

Gene: Chymera\_55 Start: 34305, Stop: 34673, Start Num: 29

Candidate Starts for Chymera\_55:

(8, 33873), (11, 33963), (16, 34143), (Start: 29 @34305 has 216 MA's), (32, 34353), (40, 34488), (45, 34548),

Gene: Clifton\_96 Start: 55258, Stop: 55584, Start Num: 29

Candidate Starts for Clifton\_96:

(Start: 29 @55258 has 216 MA's),

Gene: Command613\_149 Start: 75444, Stop: 75791, Start Num: 29

Candidate Starts for Command613\_149:

(Start: 19 @75348 has 1 MA's), (Start: 21 @75387 has 2 MA's), (Start: 29 @75444 has 216 MA's),

Gene: Contagion\_142 Start: 73952, Stop: 74299, Start Num: 29

Candidate Starts for Contagion\_142:

(Start: 21 @73895 has 2 MA's), (Start: 29 @73952 has 216 MA's),

Gene: Cookies\_148 Start: 75759, Stop: 76106, Start Num: 29

Candidate Starts for Cookies\_148:

(Start: 21 @75702 has 2 MA's), (Start: 29 @75759 has 216 MA's),

Gene: Crumble\_99 Start: 52956, Stop: 53282, Start Num: 29

Candidate Starts for Crumble\_99:

(Start: 29 @52956 has 216 MA's),

Gene: Czyszczone1\_146 Start: 74437, Stop: 74841, Start Num: 21

Candidate Starts for Czyszczone1\_146:

(Start: 21 @74437 has 2 MA's), (Start: 29 @74494 has 216 MA's),

Gene: DLane\_105 Start: 58431, Stop: 58757, Start Num: 29

Candidate Starts for DLane\_105:

(14, 58257), (17, 58293), (23, 58380), (Start: 29 @58431 has 216 MA's), (33, 58554), (48, 58689),

Gene: DRBy19\_104 Start: 57899, Stop: 58225, Start Num: 29

Candidate Starts for DRBy19\_104:

(Start: 29 @57899 has 216 MA's),

Gene: Daenerys\_102 Start: 57545, Stop: 57871, Start Num: 29

Candidate Starts for Daenerys\_102:

(Start: 29 @57545 has 216 MA's),

Gene: Dante\_104 Start: 58406, Stop: 58750, Start Num: 29  
Candidate Starts for Dante\_104:  
(14, 58232), (17, 58268), (23, 58355), (Start: 29 @58406 has 216 MA's), (35, 58550), (39, 58574),

Gene: Deb65\_97 Start: 55269, Stop: 55595, Start Num: 29  
Candidate Starts for Deb65\_97:  
(Start: 29 @55269 has 216 MA's),

Gene: DillTech15\_111 Start: 57330, Stop: 57656, Start Num: 29  
Candidate Starts for DillTech15\_111:  
(14, 57156), (17, 57192), (23, 57279), (Start: 29 @57330 has 216 MA's), (33, 57453), (48, 57588),

Gene: DoRead\_112 Start: 55713, Stop: 56039, Start Num: 29  
Candidate Starts for DoRead\_112:  
(Start: 29 @55713 has 216 MA's), (33, 55836), (48, 55971),

Gene: DoctorDiddles\_145 Start: 74489, Stop: 74836, Start Num: 29  
Candidate Starts for DoctorDiddles\_145:  
(Start: 21 @74432 has 2 MA's), (Start: 29 @74489 has 216 MA's),

Gene: Donkeykong\_110 Start: 59010, Stop: 59336, Start Num: 29  
Candidate Starts for Donkeykong\_110:  
(14, 58836), (17, 58872), (23, 58959), (Start: 29 @59010 has 216 MA's), (33, 59133), (48, 59268),

Gene: Dumbo\_149 Start: 75155, Stop: 75502, Start Num: 29  
Candidate Starts for Dumbo\_149:  
(Start: 21 @75098 has 2 MA's), (Start: 29 @75155 has 216 MA's),

Gene: Easy2Say\_148 Start: 75017, Stop: 75364, Start Num: 29  
Candidate Starts for Easy2Say\_148:  
(Start: 21 @74960 has 2 MA's), (Start: 29 @75017 has 216 MA's),

Gene: Eish\_109 Start: 57682, Stop: 58008, Start Num: 29  
Candidate Starts for Eish\_109:  
(5, 57169), (6, 57193), (9, 57256), (14, 57508), (23, 57631), (Start: 29 @57682 has 216 MA's),

Gene: EleanorGeorge\_108 Start: 59015, Stop: 59341, Start Num: 29  
Candidate Starts for EleanorGeorge\_108:  
(14, 58841), (17, 58877), (23, 58964), (Start: 29 @59015 has 216 MA's), (33, 59138), (48, 59273),

Gene: Elite2014\_146 Start: 74388, Stop: 74735, Start Num: 29  
Candidate Starts for Elite2014\_146:  
(Start: 21 @74331 has 2 MA's), (Start: 29 @74388 has 216 MA's),

Gene: Emma\_109 Start: 55950, Stop: 56276, Start Num: 29  
Candidate Starts for Emma\_109:  
(14, 55776), (17, 55812), (23, 55899), (Start: 29 @55950 has 216 MA's), (33, 56073), (48, 56208),

Gene: Emmina\_148 Start: 74714, Stop: 75061, Start Num: 29  
Candidate Starts for Emmina\_148:  
(Start: 21 @74657 has 2 MA's), (Start: 29 @74714 has 216 MA's),

Gene: Eradicator\_95 Start: 55231, Stop: 55557, Start Num: 29  
Candidate Starts for Eradicator\_95:  
(Start: 29 @55231 has 216 MA's),

Gene: Estave1\_112 Start: 60259, Stop: 60585, Start Num: 29  
Candidate Starts for Estave1\_112:  
(Start: 29 @60259 has 216 MA's),

Gene: Fastidio\_108 Start: 55371, Stop: 55697, Start Num: 29  
Candidate Starts for Fastidio\_108:  
(14, 55197), (17, 55233), (23, 55320), (Start: 29 @55371 has 216 MA's), (33, 55494), (48, 55629),

Gene: Filuzino\_105 Start: 58837, Stop: 59163, Start Num: 29  
Candidate Starts for Filuzino\_105:  
(14, 58663), (17, 58699), (23, 58786), (Start: 29 @58837 has 216 MA's), (33, 58960), (48, 59095),

Gene: FireRed\_150 Start: 75636, Stop: 75983, Start Num: 29  
Candidate Starts for FireRed\_150:  
(Start: 19 @75540 has 1 MA's), (Start: 21 @75579 has 2 MA's), (Start: 29 @75636 has 216 MA's),

Gene: Florinda\_117 Start: 58948, Stop: 59274, Start Num: 29  
Candidate Starts for Florinda\_117:  
(14, 58774), (17, 58810), (23, 58897), (Start: 29 @58948 has 216 MA's), (33, 59071), (48, 59206),

Gene: Flypotenuse\_142 Start: 74667, Stop: 75014, Start Num: 29  
Candidate Starts for Flypotenuse\_142:  
(Start: 29 @74667 has 216 MA's),

Gene: FreddyB\_113 Start: 57850, Stop: 58176, Start Num: 29  
Candidate Starts for FreddyB\_113:  
(14, 57676), (17, 57712), (23, 57799), (Start: 29 @57850 has 216 MA's), (33, 57973), (48, 58108),

Gene: GAL1\_82 Start: 49576, Stop: 49935, Start Num: 29  
Candidate Starts for GAL1\_82:  
(Start: 29 @49576 has 216 MA's), (44, 49810),

Gene: GUmbie\_104 Start: 56919, Stop: 57245, Start Num: 29  
Candidate Starts for GUmbie\_104:  
(14, 56745), (17, 56781), (23, 56868), (Start: 29 @56919 has 216 MA's), (33, 57042), (48, 57177),

Gene: Gage\_137 Start: 71069, Stop: 71416, Start Num: 29  
Candidate Starts for Gage\_137:  
(Start: 21 @71012 has 2 MA's), (Start: 29 @71069 has 216 MA's),

Gene: Galactic\_109 Start: 57393, Stop: 57719, Start Num: 29  
Candidate Starts for Galactic\_109:  
(5, 56880), (6, 56904), (9, 56967), (14, 57219), (17, 57255), (23, 57342), (Start: 29 @57393 has 216 MA's),

Gene: Gandalph\_104 Start: 54506, Stop: 54832, Start Num: 29  
Candidate Starts for Gandalph\_104:  
(14, 54332), (17, 54368), (23, 54455), (Start: 29 @54506 has 216 MA's), (33, 54629), (48, 54764),

Gene: Gemini\_151 Start: 75068, Stop: 75415, Start Num: 29  
Candidate Starts for Gemini\_151:  
(Start: 21 @75011 has 2 MA's), (Start: 29 @75068 has 216 MA's),

Gene: Geralt\_97 Start: 55267, Stop: 55593, Start Num: 29  
Candidate Starts for Geralt\_97:  
(Start: 29 @55267 has 216 MA's),

Gene: GigiOuiOui\_99 Start: 55921, Stop: 56247, Start Num: 29  
Candidate Starts for GigiOuiOui\_99:  
(5, 55408), (6, 55432), (9, 55495), (14, 55747), (17, 55783), (23, 55870), (Start: 29 @55921 has 216 MA's), (33, 56044), (48, 56179),

Gene: Girr\_103 Start: 57256, Stop: 57582, Start Num: 29  
Candidate Starts for Girr\_103:  
(Start: 29 @57256 has 216 MA's),

Gene: Glexan\_150 Start: 75917, Stop: 76264, Start Num: 29  
Candidate Starts for Glexan\_150:  
(Start: 29 @75917 has 216 MA's),

Gene: GoldenSpark\_150 Start: 74551, Stop: 74898, Start Num: 29  
Candidate Starts for GoldenSpark\_150:  
(Start: 21 @74494 has 2 MA's), (Start: 29 @74551 has 216 MA's),

Gene: Goldilocks\_152 Start: 75147, Stop: 75494, Start Num: 29  
Candidate Starts for Goldilocks\_152:  
(Start: 21 @75090 has 2 MA's), (Start: 29 @75147 has 216 MA's),

Gene: Gorge\_103 Start: 57487, Stop: 57813, Start Num: 29  
Candidate Starts for Gorge\_103:  
(14, 57313), (17, 57349), (23, 57436), (Start: 29 @57487 has 216 MA's), (33, 57610), (48, 57745),

Gene: Guppsters\_99 Start: 54367, Stop: 54693, Start Num: 29  
Candidate Starts for Guppsters\_99:  
(Start: 29 @54367 has 216 MA's), (33, 54490), (48, 54625),

Gene: Hades\_102 Start: 54518, Stop: 54844, Start Num: 29  
Candidate Starts for Hades\_102:  
(Start: 29 @54518 has 216 MA's),

Gene: Hamulus\_105 Start: 56687, Stop: 57013, Start Num: 29  
Candidate Starts for Hamulus\_105:  
(14, 56513), (17, 56549), (23, 56636), (Start: 29 @56687 has 216 MA's), (33, 56810), (48, 56945),

Gene: Harella\_153 Start: 76278, Stop: 76625, Start Num: 29  
Candidate Starts for Harella\_153:  
(Start: 29 @76278 has 216 MA's),

Gene: Highbury\_141 Start: 72834, Stop: 73181, Start Num: 29  
Candidate Starts for Highbury\_141:  
(Start: 19 @72738 has 1 MA's), (Start: 21 @72777 has 2 MA's), (Start: 29 @72834 has 216 MA's),

Gene: Hlubikazi\_102 Start: 55002, Stop: 55328, Start Num: 29  
Candidate Starts for Hlubikazi\_102:  
(5, 54489), (9, 54576), (14, 54828), (17, 54864), (23, 54951), (Start: 29 @55002 has 216 MA's), (33, 55125), (48, 55260),

Gene: Holt\_152 Start: 75334, Stop: 75681, Start Num: 29  
Candidate Starts for Holt\_152:  
(Start: 21 @75277 has 2 MA's), (Start: 29 @75334 has 216 MA's),

Gene: Hoonter\_148 Start: 74686, Stop: 75033, Start Num: 29  
Candidate Starts for Hoonter\_148:  
(Start: 29 @74686 has 216 MA's),

Gene: Hokey\_144 Start: 75005, Stop: 75352, Start Num: 29  
Candidate Starts for Hokey\_144:  
(Start: 19 @74909 has 1 MA's), (Start: 21 @74948 has 2 MA's), (Start: 29 @75005 has 216 MA's),

Gene: HufflyPuff\_148 Start: 75742, Stop: 76089, Start Num: 29  
Candidate Starts for HufflyPuff\_148:  
(Start: 21 @75685 has 2 MA's), (Start: 29 @75742 has 216 MA's),

Gene: IHOP\_151 Start: 75087, Stop: 75434, Start Num: 29  
Candidate Starts for IHOP\_151:  
(Start: 21 @75030 has 2 MA's), (Start: 29 @75087 has 216 MA's),

Gene: Ibantik\_57 Start: 25161, Stop: 25478, Start Num: 29  
Candidate Starts for Ibantik\_57:  
(22, 25107), (Start: 29 @25161 has 216 MA's), (30, 25176), (31, 25185), (38, 25320), (42, 25347), (46, 25392), (47, 25416),

Gene: Ibhubesi\_103 Start: 55132, Stop: 55458, Start Num: 29  
Candidate Starts for Ibhubesi\_103:  
(Start: 29 @55132 has 216 MA's),

Gene: Icee\_146 Start: 73588, Stop: 73935, Start Num: 29  
Candidate Starts for Icee\_146:  
(Start: 21 @73531 has 2 MA's), (Start: 29 @73588 has 216 MA's),

Gene: Inca\_147 Start: 73489, Stop: 73836, Start Num: 29  
Candidate Starts for Inca\_147:  
(18, 73372), (Start: 19 @73393 has 1 MA's), (Start: 21 @73432 has 2 MA's), (Start: 29 @73489 has 216 MA's),

Gene: Inventum\_102 Start: 56555, Stop: 56881, Start Num: 29  
Candidate Starts for Inventum\_102:  
(Start: 29 @56555 has 216 MA's),

Gene: IrishSherpFalk\_105 Start: 57329, Stop: 57673, Start Num: 29  
Candidate Starts for IrishSherpFalk\_105:  
(Start: 29 @57329 has 216 MA's), (35, 57473), (39, 57497),

Gene: James\_108 Start: 59148, Stop: 59474, Start Num: 29  
Candidate Starts for James\_108:

(14, 58974), (17, 59010), (23, 59097), (Start: 29 @59148 has 216 MA's), (33, 59271), (48, 59406),

Gene: Jarcob\_107 Start: 58468, Stop: 58794, Start Num: 29

Candidate Starts for Jarcob\_107:

(Start: 29 @58468 has 216 MA's),

Gene: JeTaime\_144 Start: 74518, Stop: 74865, Start Num: 29

Candidate Starts for JeTaime\_144:

(Start: 21 @74461 has 2 MA's), (Start: 29 @74518 has 216 MA's),

Gene: Jinglebell\_111 Start: 58360, Stop: 58686, Start Num: 29

Candidate Starts for Jinglebell\_111:

(Start: 29 @58360 has 216 MA's),

Gene: JoeyJr\_107 Start: 58463, Stop: 58789, Start Num: 29

Candidate Starts for JoeyJr\_107:

(Start: 29 @58463 has 216 MA's),

Gene: Juniper1\_98 Start: 56030, Stop: 56374, Start Num: 29

Candidate Starts for Juniper1\_98:

(Start: 29 @56030 has 216 MA's), (35, 56174), (39, 56198),

Gene: Kanye\_142 Start: 74872, Stop: 75219, Start Num: 29

Candidate Starts for Kanye\_142:

(Start: 21 @74815 has 2 MA's), (Start: 29 @74872 has 216 MA's),

Gene: Karhdo\_100 Start: 54911, Stop: 55237, Start Num: 29

Candidate Starts for Karhdo\_100:

(Start: 29 @54911 has 216 MA's),

Gene: Kenuha5\_96 Start: 56035, Stop: 56361, Start Num: 29

Candidate Starts for Kenuha5\_96:

(14, 55861), (17, 55897), (23, 55984), (Start: 29 @56035 has 216 MA's), (33, 56158), (48, 56293),

Gene: Kersh\_107 Start: 59723, Stop: 60049, Start Num: 29

Candidate Starts for Kersh\_107:

(Start: 29 @59723 has 216 MA's),

Gene: Kimchi\_151 Start: 75248, Stop: 75595, Start Num: 29

Candidate Starts for Kimchi\_151:

(Start: 21 @75191 has 2 MA's), (Start: 29 @75248 has 216 MA's),

Gene: KingMidas\_105 Start: 56917, Stop: 57243, Start Num: 29

Candidate Starts for KingMidas\_105:

(14, 56743), (17, 56779), (23, 56866), (Start: 29 @56917 has 216 MA's), (33, 57040), (48, 57175),

Gene: Krakatau\_97 Start: 52590, Stop: 52916, Start Num: 29

Candidate Starts for Krakatau\_97:

(14, 52416), (17, 52452), (23, 52539), (Start: 29 @52590 has 216 MA's), (33, 52713), (48, 52848),

Gene: KristaRAM\_113 Start: 58232, Stop: 58558, Start Num: 29

Candidate Starts for KristaRAM\_113:

(Start: 29 @58232 has 216 MA's),

Gene: Kromp\_95 Start: 57607, Stop: 57981, Start Num: 27  
Candidate Starts for Kromp\_95:  
(4, 56935), (7, 57178), (10, 57223), (12, 57367), (13, 57382), (15, 57454), (25, 57592), (Start: 27 @57607 has 1 MA's), (34, 57775), (37, 57784),

Gene: Leperchaun\_106 Start: 57697, Stop: 58023, Start Num: 29  
Candidate Starts for Leperchaun\_106:  
(Start: 29 @57697 has 216 MA's),

Gene: Lilpickle\_146 Start: 74388, Stop: 74735, Start Num: 29  
Candidate Starts for Lilpickle\_146:  
(Start: 21 @74331 has 2 MA's), (Start: 29 @74388 has 216 MA's),

Gene: Lizziana\_105 Start: 57926, Stop: 58252, Start Num: 29  
Candidate Starts for Lizziana\_105:  
(Start: 29 @57926 has 216 MA's),

Gene: Llama\_111 Start: 58003, Stop: 58329, Start Num: 29  
Candidate Starts for Llama\_111:  
(Start: 29 @58003 has 216 MA's),

Gene: Llij\_99 Start: 55622, Stop: 55966, Start Num: 29  
Candidate Starts for Llij\_99:  
(14, 55448), (17, 55484), (23, 55571), (Start: 29 @55622 has 216 MA's), (35, 55766), (39, 55790),

Gene: LunaBlu\_111 Start: 58815, Stop: 59141, Start Num: 29  
Candidate Starts for LunaBlu\_111:  
(5, 58302), (6, 58326), (9, 58389), (14, 58641), (17, 58677), (23, 58764), (Start: 29 @58815 has 216 MA's), (33, 58938), (48, 59073),

Gene: MISSy\_147 Start: 75227, Stop: 75574, Start Num: 29  
Candidate Starts for MISSy\_147:  
(Start: 19 @75131 has 1 MA's), (Start: 21 @75170 has 2 MA's), (Start: 29 @75227 has 216 MA's),

Gene: MPhalcon\_148 Start: 75024, Stop: 75371, Start Num: 29  
Candidate Starts for MPhalcon\_148:  
(Start: 19 @74928 has 1 MA's), (Start: 21 @74967 has 2 MA's), (Start: 29 @75024 has 216 MA's),

Gene: MadMen\_109 Start: 57291, Stop: 57617, Start Num: 29  
Candidate Starts for MadMen\_109:  
(Start: 29 @57291 has 216 MA's),

Gene: MadamMonkfish\_148 Start: 74973, Stop: 75320, Start Num: 29  
Candidate Starts for MadamMonkfish\_148:  
(Start: 21 @74916 has 2 MA's), (Start: 29 @74973 has 216 MA's),

Gene: Mahavrat\_98 Start: 54698, Stop: 55042, Start Num: 29  
Candidate Starts for Mahavrat\_98:  
(Start: 29 @54698 has 216 MA's), (35, 54842), (39, 54866),

Gene: Manda\_149 Start: 75442, Stop: 75789, Start Num: 29  
Candidate Starts for Manda\_149:

(Start: 19 @75346 has 1 MA's), (Start: 21 @75385 has 2 MA's), (Start: 29 @75442 has 216 MA's),

Gene: Mantra\_102 Start: 56533, Stop: 56859, Start Num: 29

Candidate Starts for Mantra\_102:

(5, 56020), (9, 56107), (14, 56359), (23, 56482), (Start: 29 @56533 has 216 MA's), (33, 56656), (48, 56791),

Gene: Maravista\_102 Start: 58887, Stop: 59231, Start Num: 29

Candidate Starts for Maravista\_102:

(Start: 29 @58887 has 216 MA's), (35, 59031), (39, 59055),

Gene: Marshmallow\_149 Start: 76102, Stop: 76506, Start Num: 21

Candidate Starts for Marshmallow\_149:

(Start: 21 @76102 has 2 MA's), (Start: 29 @76159 has 216 MA's),

Gene: Martik\_103 Start: 58387, Stop: 58713, Start Num: 29

Candidate Starts for Martik\_103:

(Start: 29 @58387 has 216 MA's),

Gene: Mattes\_105 Start: 57605, Stop: 57931, Start Num: 29

Candidate Starts for Mattes\_105:

(Start: 29 @57605 has 216 MA's),

Gene: Maxxinista\_148 Start: 74634, Stop: 74981, Start Num: 29

Candidate Starts for Maxxinista\_148:

(Start: 21 @74577 has 2 MA's), (Start: 29 @74634 has 216 MA's),

Gene: Melissauren88\_95 Start: 53888, Stop: 54214, Start Num: 29

Candidate Starts for Melissauren88\_95:

(Start: 29 @53888 has 216 MA's), (33, 54011), (48, 54146),

Gene: MilanaBonita\_98 Start: 55783, Stop: 56109, Start Num: 29

Candidate Starts for MilanaBonita\_98:

(14, 55609), (17, 55645), (23, 55732), (Start: 29 @55783 has 216 MA's), (33, 55906), (48, 56041),

Gene: MinionDave\_103 Start: 57559, Stop: 57885, Start Num: 29

Candidate Starts for MinionDave\_103:

(14, 57385), (17, 57421), (23, 57508), (Start: 29 @57559 has 216 MA's), (33, 57682), (48, 57817),

Gene: Miniwave\_140 Start: 74380, Stop: 74727, Start Num: 29

Candidate Starts for Miniwave\_140:

(Start: 21 @74323 has 2 MA's), (Start: 29 @74380 has 216 MA's),

Gene: Minnie\_99 Start: 58017, Stop: 58361, Start Num: 29

Candidate Starts for Minnie\_99:

(14, 57843), (17, 57879), (23, 57966), (Start: 29 @58017 has 216 MA's), (35, 58161), (39, 58185),

Gene: MisterCuddles\_104 Start: 57256, Stop: 57582, Start Num: 29

Candidate Starts for MisterCuddles\_104:

(Start: 29 @57256 has 216 MA's),

Gene: Modragons\_107 Start: 57991, Stop: 58317, Start Num: 29

Candidate Starts for Modragons\_107:



(Start: 29 @57991 has 216 MA's),

Gene: Moonbeam\_107 Start: 57515, Stop: 57841, Start Num: 29

Candidate Starts for Moonbeam\_107:

(14, 57341), (17, 57377), (23, 57464), (Start: 29 @57515 has 216 MA's), (33, 57638), (48, 57773),

Gene: Ms6\_107 Start: 53778, Stop: 54104, Start Num: 29

Candidate Starts for Ms6\_107:

(14, 53604), (17, 53640), (23, 53727), (Start: 29 @53778 has 216 MA's), (33, 53901), (48, 54036),

Gene: Murica\_149 Start: 76472, Stop: 76819, Start Num: 29

Candidate Starts for Murica\_149:

(Start: 19 @76376 has 1 MA's), (Start: 21 @76415 has 2 MA's), (Start: 29 @76472 has 216 MA's),

Gene: Murphy\_148 Start: 75598, Stop: 75945, Start Num: 29

Candidate Starts for Murphy\_148:

(Start: 21 @75541 has 2 MA's), (Start: 29 @75598 has 216 MA's),

Gene: Mutaforma13\_106 Start: 57233, Stop: 57559, Start Num: 29

Candidate Starts for Mutaforma13\_106:

(14, 57059), (17, 57095), (23, 57182), (Start: 29 @57233 has 216 MA's), (33, 57356), (48, 57491),

Gene: Myrale\_146 Start: 75838, Stop: 76185, Start Num: 29

Candidate Starts for Myrale\_146:

(Start: 21 @75781 has 2 MA's), (Start: 29 @75838 has 216 MA's),

Gene: Nala\_149 Start: 75313, Stop: 75660, Start Num: 29

Candidate Starts for Nala\_149:

(Start: 19 @75217 has 1 MA's), (Start: 21 @75256 has 2 MA's), (Start: 29 @75313 has 216 MA's),

Gene: Nimbo\_96 Start: 55269, Stop: 55595, Start Num: 29

Candidate Starts for Nimbo\_96:

(Start: 29 @55269 has 216 MA's),

Gene: Nimrod\_145 Start: 75854, Stop: 76201, Start Num: 29

Candidate Starts for Nimrod\_145:

(Start: 21 @75797 has 2 MA's), (Start: 29 @75854 has 216 MA's),

Gene: NoSleep\_145 Start: 74074, Stop: 74421, Start Num: 29

Candidate Starts for NoSleep\_145:

(Start: 21 @74017 has 2 MA's), (Start: 29 @74074 has 216 MA's),

Gene: NormanBulbieJr\_102 Start: 57635, Stop: 57961, Start Num: 29

Candidate Starts for NormanBulbieJr\_102:

(14, 57461), (17, 57497), (23, 57584), (Start: 29 @57635 has 216 MA's), (33, 57758), (48, 57893),

Gene: Ochi17\_110 Start: 57598, Stop: 57924, Start Num: 29

Candidate Starts for Ochi17\_110:

(Start: 29 @57598 has 216 MA's),

Gene: OfUltron\_111 Start: 58147, Stop: 58473, Start Num: 29

Candidate Starts for OfUltron\_111:

(Start: 29 @58147 has 216 MA's),

Gene: OldBen\_101 Start: 56661, Stop: 56987, Start Num: 29

Candidate Starts for OldBen\_101:

(Start: 29 @56661 has 216 MA's),

Gene: OrionPax\_144 Start: 74532, Stop: 74879, Start Num: 29

Candidate Starts for OrionPax\_144:

(Start: 21 @74475 has 2 MA's), (Start: 29 @74532 has 216 MA's),

Gene: PHappiness\_104 Start: 57490, Stop: 57816, Start Num: 29

Candidate Starts for PHappiness\_104:

(Start: 29 @57490 has 216 MA's),

Gene: PMC\_104 Start: 56224, Stop: 56550, Start Num: 29

Candidate Starts for PMC\_104:

(1, 55117), (2, 55408), (3, 55471), (5, 55711), (9, 55798), (14, 56050), (17, 56086), (23, 56173), (Start: 29 @56224 has 216 MA's), (33, 56347), (48, 56482),

Gene: Pacc40\_101 Start: 58086, Stop: 58412, Start Num: 29

Candidate Starts for Pacc40\_101:

(14, 57912), (17, 57948), (23, 58035), (Start: 29 @58086 has 216 MA's),

Gene: Paperbeatsrock\_144 Start: 75058, Stop: 75405, Start Num: 29

Candidate Starts for Paperbeatsrock\_144:

(Start: 21 @75001 has 2 MA's), (Start: 29 @75058 has 216 MA's),

Gene: Pat3\_147 Start: 75094, Stop: 75441, Start Num: 29

Candidate Starts for Pat3\_147:

(Start: 29 @75094 has 216 MA's),

Gene: Phaja\_151 Start: 75104, Stop: 75451, Start Num: 29

Candidate Starts for Phaja\_151:

(Start: 21 @75047 has 2 MA's), (Start: 29 @75104 has 216 MA's),

Gene: Phalconet\_106 Start: 57180, Stop: 57506, Start Num: 29

Candidate Starts for Phalconet\_106:

(14, 57006), (17, 57042), (23, 57129), (Start: 29 @57180 has 216 MA's), (33, 57303), (48, 57438),

Gene: Phanphagia\_109 Start: 58459, Stop: 58803, Start Num: 29

Candidate Starts for Phanphagia\_109:

(Start: 29 @58459 has 216 MA's), (35, 58603), (39, 58627),

Gene: Phasih\_100 Start: 55657, Stop: 55983, Start Num: 29

Candidate Starts for Phasih\_100:

(Start: 29 @55657 has 216 MA's),

Gene: PhatBacter\_150 Start: 75636, Stop: 75983, Start Num: 29

Candidate Starts for PhatBacter\_150:

(Start: 19 @75540 has 1 MA's), (Start: 21 @75579 has 2 MA's), (Start: 29 @75636 has 216 MA's),

Gene: Phatniss\_101 Start: 56036, Stop: 56380, Start Num: 29

Candidate Starts for Phatniss\_101:

(14, 55862), (17, 55898), (23, 55985), (Start: 29 @56036 has 216 MA's), (35, 56180), (39, 56204),

Gene: Phaux\_147 Start: 75898, Stop: 76245, Start Num: 29  
Candidate Starts for Phaux\_147:  
(Start: 21 @75841 has 2 MA's), (Start: 29 @75898 has 216 MA's),

Gene: PhesterPhotato\_109 Start: 57154, Stop: 57480, Start Num: 29  
Candidate Starts for PhesterPhotato\_109:  
(14, 56980), (17, 57016), (23, 57103), (Start: 29 @57154 has 216 MA's), (33, 57277), (48, 57412),

Gene: Philus\_108 Start: 58766, Stop: 59092, Start Num: 29  
Candidate Starts for Philus\_108:  
(14, 58592), (17, 58628), (23, 58715), (Start: 29 @58766 has 216 MA's), (33, 58889), (48, 59024),

Gene: Phrux\_143 Start: 74130, Stop: 74477, Start Num: 29  
Candidate Starts for Phrux\_143:  
(Start: 21 @74073 has 2 MA's), (Start: 29 @74130 has 216 MA's),

Gene: Pippy\_103 Start: 56195, Stop: 56521, Start Num: 29  
Candidate Starts for Pippy\_103:  
(14, 56021), (17, 56057), (23, 56144), (Start: 29 @56195 has 216 MA's), (33, 56318), (48, 56453),

Gene: Polka14\_108 Start: 58259, Stop: 58585, Start Num: 29  
Candidate Starts for Polka14\_108:  
(Start: 29 @58259 has 216 MA's),

Gene: Ponzi\_39 Start: 21753, Stop: 22079, Start Num: 29  
Candidate Starts for Ponzi\_39:  
(Start: 29 @21753 has 216 MA's), (46, 21984),

Gene: PopTart\_95 Start: 54627, Stop: 54953, Start Num: 29  
Candidate Starts for PopTart\_95:  
(5, 54114), (9, 54201), (14, 54453), (17, 54489), (23, 54576), (Start: 29 @54627 has 216 MA's), (33, 54750), (48, 54885),

Gene: Priscilla\_105 Start: 57733, Stop: 58059, Start Num: 29  
Candidate Starts for Priscilla\_105:  
(Start: 29 @57733 has 216 MA's),

Gene: Quallification\_146 Start: 75327, Stop: 75674, Start Num: 29  
Candidate Starts for Quallification\_146:  
(Start: 21 @75270 has 2 MA's), (Start: 29 @75327 has 216 MA's),

Gene: Radiance\_103 Start: 56827, Stop: 57153, Start Num: 29  
Candidate Starts for Radiance\_103:  
(5, 56314), (6, 56338), (9, 56401), (14, 56653), (17, 56689), (23, 56776), (Start: 29 @56827 has 216 MA's),

Gene: RedBird\_105 Start: 58237, Stop: 58563, Start Num: 29  
Candidate Starts for RedBird\_105:  
(Start: 29 @58237 has 216 MA's),

Gene: Rimmer\_145 Start: 75079, Stop: 75426, Start Num: 29  
Candidate Starts for Rimmer\_145:

(Start: 21 @75022 has 2 MA's), (Start: 29 @75079 has 216 MA's),

Gene: Rita\_104 Start: 58303, Stop: 58629, Start Num: 29

Candidate Starts for Rita\_104:

(14, 58129), (17, 58165), (23, 58252), (Start: 29 @58303 has 216 MA's), (33, 58426), (48, 58561),

Gene: RitaG\_103 Start: 57292, Stop: 57618, Start Num: 29

Candidate Starts for RitaG\_103:

(Start: 29 @57292 has 216 MA's),

Gene: RiverMonster\_146 Start: 74984, Stop: 75331, Start Num: 29

Candidate Starts for RiverMonster\_146:

(Start: 21 @74927 has 2 MA's), (Start: 29 @74984 has 216 MA's),

Gene: Rockne\_108 Start: 56236, Stop: 56562, Start Num: 29

Candidate Starts for Rockne\_108:

(1, 55129), (2, 55420), (3, 55483), (5, 55723), (9, 55810), (14, 56062), (17, 56098), (23, 56185), (Start: 29 @56236 has 216 MA's), (33, 56359), (48, 56494),

Gene: Rowa\_68 Start: 42116, Stop: 42472, Start Num: 24

Candidate Starts for Rowa\_68:

(20, 42074), (Start: 24 @42116 has 1 MA's), (41, 42302), (43, 42326),

Gene: Royals2015\_108 Start: 56107, Stop: 56451, Start Num: 29

Candidate Starts for Royals2015\_108:

(14, 55933), (17, 55969), (23, 56056), (Start: 29 @56107 has 216 MA's), (35, 56251), (39, 56275),

Gene: Ruby\_100 Start: 57258, Stop: 57584, Start Num: 29

Candidate Starts for Ruby\_100:

(Start: 29 @57258 has 216 MA's),

Gene: Sabbb\_107 Start: 55263, Stop: 55589, Start Num: 29

Candidate Starts for Sabbb\_107:

(14, 55089), (17, 55125), (23, 55212), (Start: 29 @55263 has 216 MA's),

Gene: Saints25\_141 Start: 72738, Stop: 73181, Start Num: 19

Candidate Starts for Saints25\_141:

(Start: 19 @72738 has 1 MA's), (Start: 21 @72777 has 2 MA's), (Start: 29 @72834 has 216 MA's),

Gene: Sandalphon\_103 Start: 58290, Stop: 58634, Start Num: 29

Candidate Starts for Sandalphon\_103:

(14, 58116), (17, 58152), (23, 58239), (Start: 29 @58290 has 216 MA's), (35, 58434), (39, 58458),

Gene: Sassafras\_106 Start: 56554, Stop: 56880, Start Num: 29

Candidate Starts for Sassafras\_106:

(Start: 29 @56554 has 216 MA's),

Gene: SassyB\_95 Start: 54627, Stop: 54953, Start Num: 29

Candidate Starts for SassyB\_95:

(5, 54114), (9, 54201), (14, 54453), (17, 54489), (23, 54576), (Start: 29 @54627 has 216 MA's), (33, 54750), (48, 54885),

Gene: Scottish\_105 Start: 56356, Stop: 56682, Start Num: 29

Candidate Starts for Scottish\_105:  
(14, 56182), (17, 56218), (23, 56305), (Start: 29 @56356 has 216 MA's), (33, 56479), (48, 56614),

Gene: Seabastian\_111 Start: 58148, Stop: 58474, Start Num: 29  
Candidate Starts for Seabastian\_111:  
(Start: 29 @58148 has 216 MA's),

Gene: ShamWow\_145 Start: 75352, Stop: 75699, Start Num: 29  
Candidate Starts for ShamWow\_145:  
(Start: 21 @75295 has 2 MA's), (Start: 29 @75352 has 216 MA's),

Gene: Shambre1\_67 Start: 41812, Stop: 42165, Start Num: 29  
Candidate Starts for Shambre1\_67:  
(Start: 29 @41812 has 216 MA's), (42, 41995),

Gene: Shauna1\_106 Start: 58075, Stop: 58419, Start Num: 29  
Candidate Starts for Shauna1\_106:  
(Start: 29 @58075 has 216 MA's), (35, 58219), (39, 58243),

Gene: ShereKhan\_145 Start: 75552, Stop: 75899, Start Num: 29  
Candidate Starts for ShereKhan\_145:  
(Start: 21 @75495 has 2 MA's), (Start: 29 @75552 has 216 MA's),

Gene: ShiLan\_107 Start: 59324, Stop: 59650, Start Num: 29  
Candidate Starts for ShiLan\_107:  
(Start: 29 @59324 has 216 MA's),

Gene: ShowerHandel\_107 Start: 57093, Stop: 57419, Start Num: 29  
Candidate Starts for ShowerHandel\_107:  
(14, 56919), (17, 56955), (23, 57042), (Start: 29 @57093 has 216 MA's), (33, 57216), (48, 57351),

Gene: ShroomBoi\_105 Start: 57753, Stop: 58079, Start Num: 29  
Candidate Starts for ShroomBoi\_105:  
(5, 57240), (9, 57327), (14, 57579), (23, 57702), (Start: 29 @57753 has 216 MA's), (33, 57876),

Gene: SiSi\_99 Start: 55811, Stop: 56137, Start Num: 29  
Candidate Starts for SiSi\_99:  
(14, 55637), (17, 55673), (23, 55760), (Start: 29 @55811 has 216 MA's), (33, 55934), (48, 56069),

Gene: SophKB\_144 Start: 75004, Stop: 75351, Start Num: 29  
Candidate Starts for SophKB\_144:  
(Start: 21 @74947 has 2 MA's), (Start: 29 @75004 has 216 MA's),

Gene: Sotrice96\_151 Start: 75718, Stop: 76065, Start Num: 29  
Candidate Starts for Sotrice96\_151:  
(Start: 21 @75661 has 2 MA's), (Start: 29 @75718 has 216 MA's),

Gene: Sparkdehlily\_111 Start: 55806, Stop: 56132, Start Num: 29  
Candidate Starts for Sparkdehlily\_111:  
(Start: 29 @55806 has 216 MA's),

Gene: Spooks\_36 Start: 24524, Stop: 24868, Start Num: 29  
Candidate Starts for Spooks\_36:

(26, 24515), (Start: 28 @24518 has 1 MA's), (Start: 29 @24524 has 216 MA's),

Gene: Spoonbill\_104 Start: 55237, Stop: 55563, Start Num: 29

Candidate Starts for Spoonbill\_104:

(Start: 29 @55237 has 216 MA's),

Gene: StAnnes\_110 Start: 58889, Stop: 59215, Start Num: 29

Candidate Starts for StAnnes\_110:

(14, 58715), (17, 58751), (23, 58838), (Start: 29 @58889 has 216 MA's), (33, 59012), (48, 59147),

Gene: Stank\_150 Start: 75344, Stop: 75691, Start Num: 29

Candidate Starts for Stank\_150:

(Start: 21 @75287 has 2 MA's), (Start: 29 @75344 has 216 MA's),

Gene: Stark\_143 Start: 74150, Stop: 74497, Start Num: 29

Candidate Starts for Stark\_143:

(Start: 21 @74093 has 2 MA's), (Start: 29 @74150 has 216 MA's),

Gene: StolenFromERC\_148 Start: 74689, Stop: 75036, Start Num: 29

Candidate Starts for StolenFromERC\_148:

(Start: 21 @74632 has 2 MA's), (Start: 29 @74689 has 216 MA's),

Gene: Success\_39 Start: 23746, Stop: 24093, Start Num: 28

Candidate Starts for Success\_39:

(26, 23743), (Start: 28 @23746 has 1 MA's), (Start: 29 @23752 has 216 MA's), (36, 23911),

Gene: SuperGrey\_103 Start: 58875, Stop: 59201, Start Num: 29

Candidate Starts for SuperGrey\_103:

(14, 58701), (17, 58737), (23, 58824), (Start: 29 @58875 has 216 MA's), (33, 58998), (48, 59133),

Gene: SwagPiggett\_106 Start: 58433, Stop: 58759, Start Num: 29

Candidate Starts for SwagPiggett\_106:

(Start: 29 @58433 has 216 MA's),

Gene: TBrady12\_151 Start: 74778, Stop: 75125, Start Num: 29

Candidate Starts for TBrady12\_151:

(Start: 21 @74721 has 2 MA's), (Start: 29 @74778 has 216 MA's),

Gene: TDanisky\_112 Start: 55806, Stop: 56132, Start Num: 29

Candidate Starts for TDanisky\_112:

(Start: 29 @55806 has 216 MA's),

Gene: Taj\_110 Start: 58080, Stop: 58430, Start Num: 29

Candidate Starts for Taj\_110:

(14, 57906), (17, 57942), (23, 58029), (Start: 29 @58080 has 216 MA's), (33, 58203), (48, 58338),

Gene: Tarkin\_144 Start: 75417, Stop: 75764, Start Num: 29

Candidate Starts for Tarkin\_144:

(Start: 21 @75360 has 2 MA's), (Start: 29 @75417 has 216 MA's),

Gene: Teaspoon\_130 Start: 70361, Stop: 70708, Start Num: 29

Candidate Starts for Teaspoon\_130:

(Start: 21 @70304 has 2 MA's), (Start: 29 @70361 has 216 MA's),

Gene: Thresher\_148 Start: 75611, Stop: 75958, Start Num: 29  
Candidate Starts for Thresher\_148:  
(Start: 19 @75515 has 1 MA's), (Start: 21 @75554 has 2 MA's), (Start: 29 @75611 has 216 MA's),

Gene: Traaww1\_144 Start: 74842, Stop: 75189, Start Num: 29  
Candidate Starts for Traaww1\_144:  
(Start: 29 @74842 has 216 MA's),

Gene: Tuco\_150 Start: 76363, Stop: 76710, Start Num: 29  
Candidate Starts for Tuco\_150:  
(Start: 21 @76306 has 2 MA's), (Start: 29 @76363 has 216 MA's),

Gene: Tweety\_109 Start: 58225, Stop: 58551, Start Num: 29  
Candidate Starts for Tweety\_109:  
(14, 58051), (17, 58087), (23, 58174), (Start: 29 @58225 has 216 MA's), (33, 58348), (48, 58483),

Gene: Ukulele\_143 Start: 74533, Stop: 74880, Start Num: 29  
Candidate Starts for Ukulele\_143:  
(Start: 19 @74437 has 1 MA's), (Start: 21 @74476 has 2 MA's), (Start: 29 @74533 has 216 MA's),

Gene: VRedHorse\_105 Start: 54331, Stop: 54657, Start Num: 29  
Candidate Starts for VRedHorse\_105:  
(Start: 29 @54331 has 216 MA's),

Gene: Veteran\_94 Start: 55679, Stop: 56005, Start Num: 29  
Candidate Starts for Veteran\_94:  
(14, 55505), (17, 55541), (23, 55628), (Start: 29 @55679 has 216 MA's), (33, 55802), (48, 55937),

Gene: Wachhund\_101 Start: 54046, Stop: 54372, Start Num: 29  
Candidate Starts for Wachhund\_101:  
(Start: 29 @54046 has 216 MA's),

Gene: Wee\_109 Start: 58763, Stop: 59089, Start Num: 29  
Candidate Starts for Wee\_109:  
(14, 58589), (17, 58625), (23, 58712), (Start: 29 @58763 has 216 MA's), (33, 58886), (48, 59021),

Gene: Whatsapiecost\_99 Start: 52358, Stop: 52702, Start Num: 29  
Candidate Starts for Whatsapiecost\_99:  
(14, 52184), (17, 52220), (23, 52307), (Start: 29 @52358 has 216 MA's), (35, 52502), (39, 52526),

Gene: Whouxphf\_108 Start: 58625, Stop: 58951, Start Num: 29  
Candidate Starts for Whouxphf\_108:  
(14, 58451), (17, 58487), (23, 58574), (Start: 29 @58625 has 216 MA's), (33, 58748), (48, 58883),

Gene: Wiggin\_149 Start: 74322, Stop: 74669, Start Num: 29  
Candidate Starts for Wiggin\_149:  
(Start: 21 @74265 has 2 MA's), (Start: 29 @74322 has 216 MA's),

Gene: WillSterrel\_103 Start: 57362, Stop: 57706, Start Num: 29  
Candidate Starts for WillSterrel\_103:  
(Start: 29 @57362 has 216 MA's), (35, 57506), (39, 57530),

Gene: Willez\_144 Start: 73995, Stop: 74342, Start Num: 29  
Candidate Starts for Willez\_144:  
(Start: 21 @73938 has 2 MA's), (Start: 29 @73995 has 216 MA's),

Gene: Youngblood\_150 Start: 75315, Stop: 75662, Start Num: 29  
Candidate Starts for Youngblood\_150:  
(Start: 21 @75258 has 2 MA's), (Start: 29 @75315 has 216 MA's),

Gene: Zerg\_103 Start: 56837, Stop: 57181, Start Num: 29  
Candidate Starts for Zerg\_103:  
(14, 56663), (17, 56699), (23, 56786), (Start: 29 @56837 has 216 MA's), (35, 56981), (39, 57005),

Gene: Zizzle\_108 Start: 58913, Stop: 59239, Start Num: 29  
Candidate Starts for Zizzle\_108:  
(Start: 29 @58913 has 216 MA's), (33, 59036), (48, 59171),