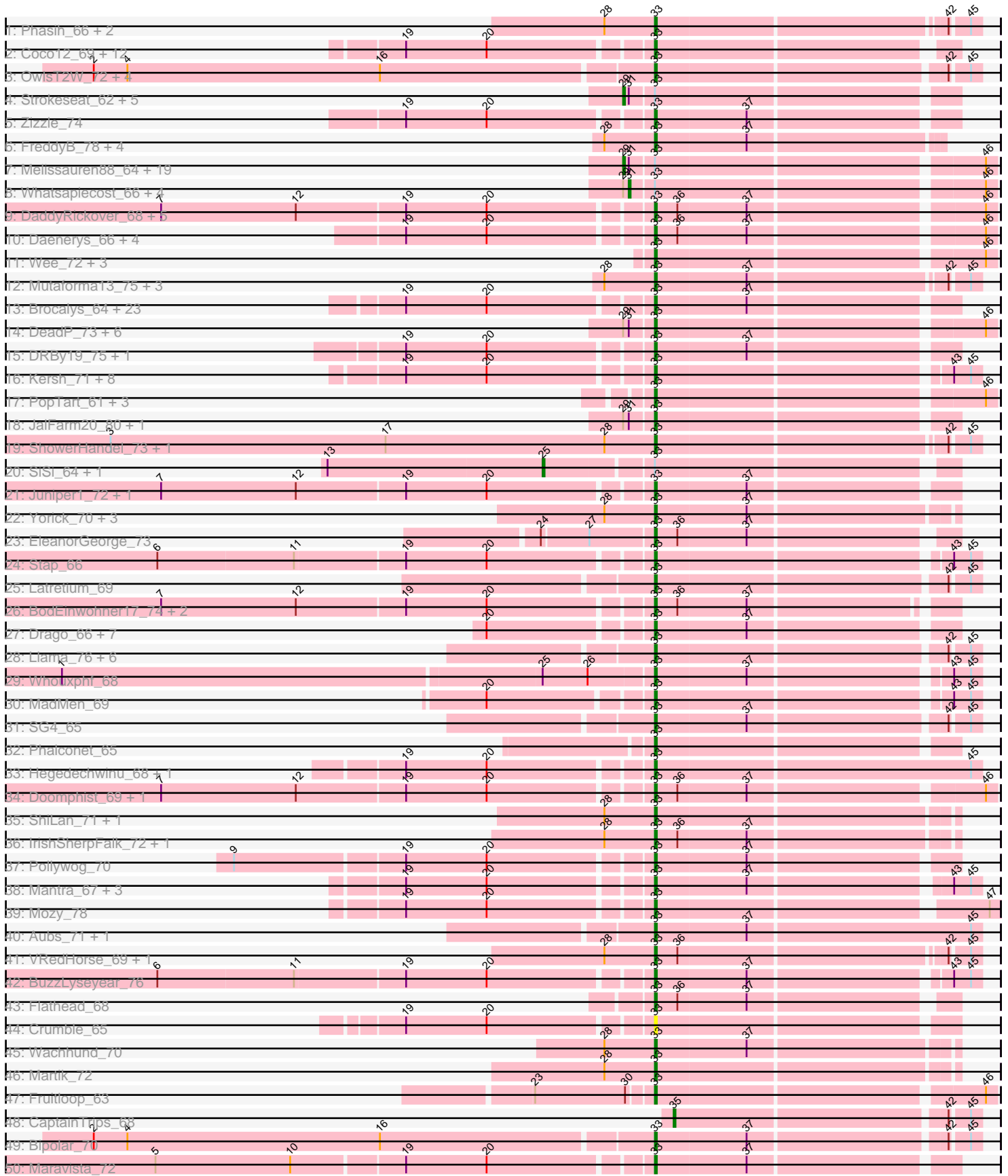
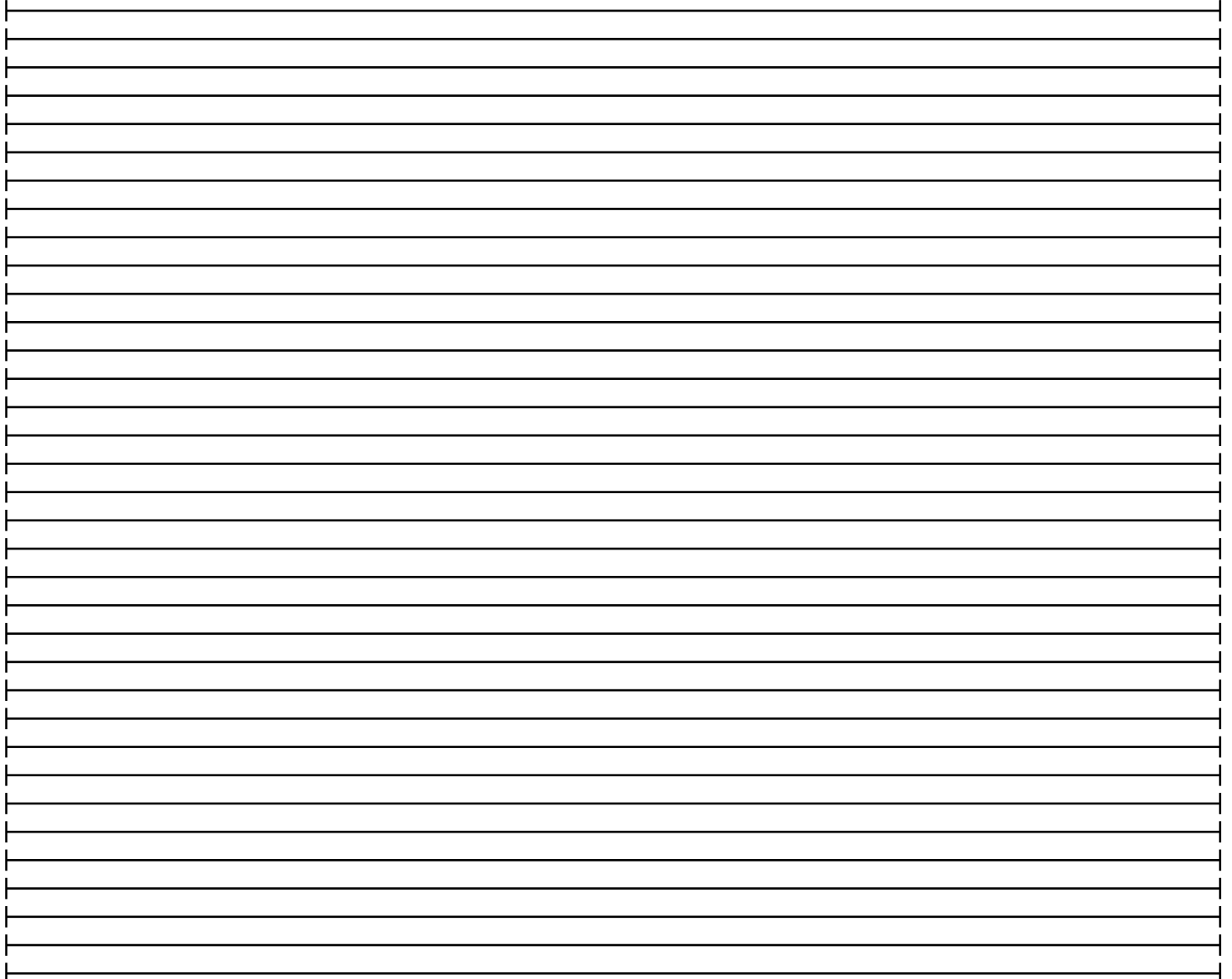
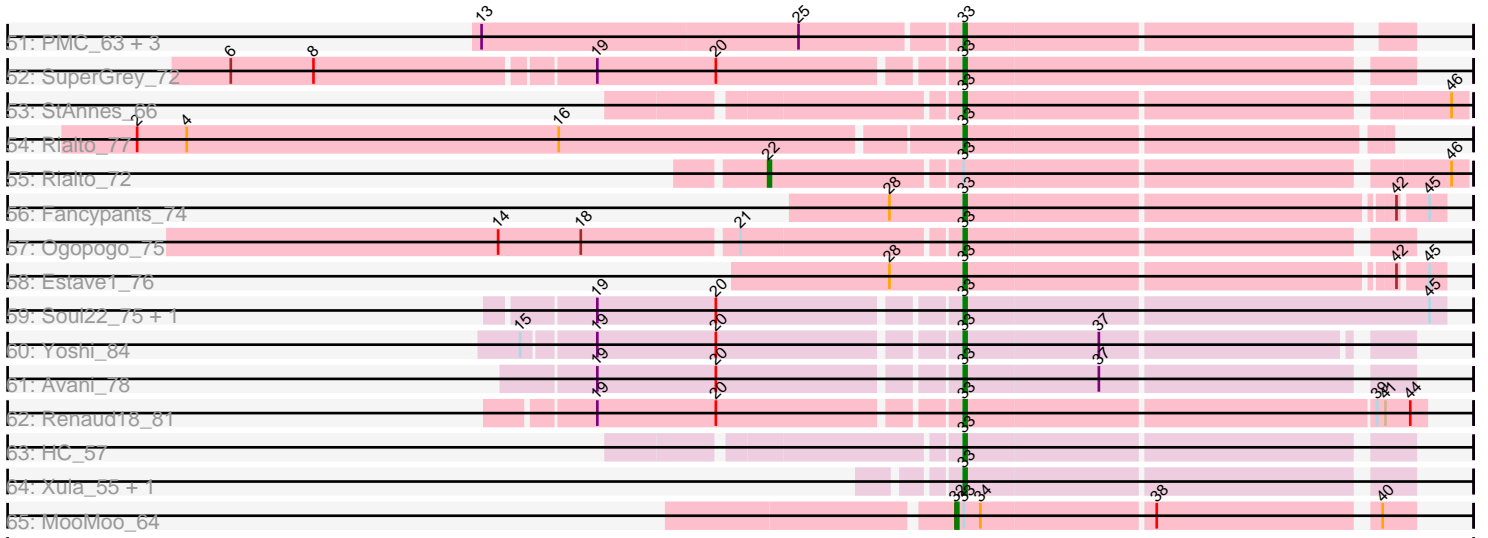


# Pham 157589



Pham 157589



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 157589 Report

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

Pham number 157589 has 207 members, 13 are drafts.

Phages represented in each track:

- Track 1 : Phasih\_66, Starcevich\_70, Moonbeam\_70
- Track 2 : Coco12\_69, Ruby\_65, Cerasum\_66, Marker\_77, MisterCuddles\_67, Girr\_67, Demsculpinboyz\_81, BlueCrab\_72, Krakatau\_65, Spartacus\_73, BigPhil\_66, Mahavrat\_66, Sabbb\_71
- Track 3 : OwlsT2W\_72, DosHalletts\_77, Zerg\_70, Royals2015\_76, Hades\_70
- Track 4 : Strokeseat\_62, Juice456\_68, Donkeykong\_69, Hlubikazi\_62, KristaRAM\_70, Mandlovu\_62
- Track 5 : Zizzle\_74
- Track 6 : FreddyB\_78, Kenuha5\_70, Ramsey\_73, DillTech15\_71, Madiba\_75
- Track 7 : Melissauren88\_64, QuickMath\_70, Scottish\_65, Empress\_65, DotProduct\_61, Jabbawokkie\_81, KingMidas\_66, Ms6\_63, Seagreen\_65, Girafales\_74, Nimbo\_60, Kimberlium\_71, Blarby\_79, Shauna1\_64, Deb65\_61, Firehouse51\_69, Quico\_74, TChen\_68, OldBen\_64, Phanphagia\_62
- Track 8 : Whatsapiecost\_66, BodEinwohner17\_67, Ovechkin\_66, Geralt\_61, MilanaBonita\_56
- Track 9 : DaddyRickover\_68, Sassafras\_67, Inventum\_64, RedBird\_67, Polka14\_70, Dorothy\_67
- Track 10 : Daenerys\_66, JoeyJr\_67, PHappiness\_67, Leperchaun\_64, RitaG\_67
- Track 11 : Wee\_72, TDanisky\_74, Sparkdehlily\_74, Taj\_72
- Track 12 : Mutaforma13\_75, Beakin\_70, LunaBlu\_72, Galactic\_69
- Track 13 : Brocalys\_64, RockyHorror\_70, DotProduct\_70, BobaPhett\_74, Pippy\_69, Saal\_71, Lizziana\_75, Clifton\_64, Karhdo\_68, LastJedi\_63, Gorge\_73, NormanBulbieJr\_69, Eish\_72, Koella\_64, Priscilla\_70, Doug\_71, SwagPiggett\_75, Mattes\_73, SimranZ1\_70, Spoonbill\_70, Cabrinians\_71, OlympiaSaint\_71, DaWorst\_70, James\_73
- Track 14 : DeadP\_73, Florinda\_77, Akhila\_57, IbOuu\_69, LittleShirley\_69, LunaStella\_61, Zapner\_80
- Track 15 : DRBy19\_75, Philus\_74
- Track 16 : Kersh\_71, lbhubesi\_69, Burwell21\_68, Byougenkin\_70, Plumbus\_71, LilMoolah\_68, Che8\_74, Pacc40\_63, Nivrat\_66
- Track 17 : PopTart\_61, Filuzino\_65, DLane\_62, SassyB\_61
- Track 18 : JalFarm20\_80, PhesterPhotato\_70
- Track 19 : ShowerHandel\_73, ByChance\_65
- Track 20 : SiSi\_64, Boomer\_71
- Track 21 : Juniper1\_72, Blexus\_69
- Track 22 : Yorick\_70, Rita\_77, GigiOuiOui\_67, Jarcob\_71
- Track 23 : EleanorGeorge\_73

- Track 24 : Stap\_66
- Track 25 : Latretium\_69
- Track 26 : BodEinwohner17\_74, Radiance\_68, Tootsieroll\_71
- Track 27 : Drago\_66, UncleRicky\_68, Leozinho\_69, Lij\_65, DirtMcgirt\_68, Enby\_70, Phatniss\_67, Lorde\_69
- Track 28 : Llama\_76, AlpineSix\_76, Bubbles123\_67, Che9d\_81, Seabastian\_77, Nitzel\_66, OfUltron\_77
- Track 29 : Whouxphf\_68
- Track 30 : MadMen\_69
- Track 31 : SG4\_65
- Track 32 : Phalconet\_65
- Track 33 : Hegedechwinu\_68, Gandalph\_71
- Track 34 : Doomphist\_69, Poenanya\_69
- Track 35 : ShiLan\_71, ArcusAngelus\_75
- Track 36 : IrishSherpFalk\_72, WillSterrel\_72
- Track 37 : Pollywog\_70
- Track 38 : Mantra\_67, Sarma624\_68, Emma\_72, Velveteen\_65
- Track 39 : Mozy\_78
- Track 40 : Aubs\_71, ShroomBoi\_72
- Track 41 : VRedHorse\_69, Cornucopia\_71
- Track 42 : BuzzLyseyear\_76
- Track 43 : Flathead\_68
- Track 44 : Crumble\_65
- Track 45 : Wachhund\_70
- Track 46 : Martik\_72
- Track 47 : Fruitloop\_63
- Track 48 : CaptainTrips\_68
- Track 49 : Bipolar\_70
- Track 50 : Maravista\_72
- Track 51 : PMC\_63, Rockne\_67, MilleniumForce\_69, ThetaBob\_74
- Track 52 : SuperGrey\_72
- Track 53 : StAnnes\_66
- Track 54 : Rialto\_77
- Track 55 : Rialto\_72
- Track 56 : Fancypants\_74
- Track 57 : Ogopogo\_75
- Track 58 : Estave1\_76
- Track 59 : Soul22\_75, Cornie\_67
- Track 60 : Yoshi\_84
- Track 61 : Avani\_78
- Track 62 : Renaud18\_81
- Track 63 : HC\_57
- Track 64 : Xula\_55, QueenHazel\_56
- Track 65 : MooMoo\_64

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

The start number called the most often in the published annotations is 33, it was called in 161 of the 194 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Akhila\_57, AlpineSix\_76, ArcusAngelus\_75, Aubs\_71, Avani\_78, Beakin\_70, BigPhil\_66, Bipolar\_70, Blexus\_69, BlueCrab\_72, BobaPhett\_74, BodEinwohner17\_74, Brocalys\_64, Bubbles123\_67, Burwell21\_68, BuzzLyseyear\_76, ByChance\_65, Byougenkin\_70, Cabrinians\_71, Cerasum\_66, Che8\_74, Che9d\_81, Clifton\_64, Coco12\_69, Cornie\_67, Cornucopia\_71, Crumble\_65, DLane\_62, DRBy19\_75, DaWorst\_70, DaddyRickover\_68, Daenerys\_66, DeadP\_73, Demsculpinboyz\_81, DillTech15\_71, DirtMcgirt\_68, Doomphist\_69, Dorothy\_67, DosHalletts\_77, DotProduct\_70, Doug\_71, Drago\_66, Eish\_72, EleanorGeorge\_73, Emma\_72, Enby\_70, Estave1\_76, Fancypants\_74, Filuzino\_65, Flathead\_68, Florinda\_77, FreddyB\_78, Fruitloop\_63, Galactic\_69, Gandolph\_71, GigiOuiOui\_67, Girr\_67, Gorge\_73, HC\_57, Hades\_70, Hegedechwinu\_68, IbOuu\_69, Ibhubesi\_69, Inventum\_64, IrishSherpFalk\_72, JalFarm20\_80, James\_73, Jarcob\_71, JoeyJr\_67, Juniper1\_72, Karhdo\_68, Kenuha5\_70, Kersh\_71, Koella\_64, Krakatau\_65, LastJedi\_63, Latretium\_69, Leozinho\_69, Leperchaun\_64, LilMoolah\_68, LittleShirley\_69, Lizziana\_75, Llama\_76, Llij\_65, Lorde\_69, LunaBlu\_72, LunaStella\_61, MadMen\_69, Madiba\_75, Mahavrat\_66, Mantra\_67, Maravista\_72, Marker\_77, Martik\_72, Mattes\_73, MilleniumForce\_69, MisterCuddles\_67, Moonbeam\_70, Mozy\_78, Mutaforma13\_75, Nitzel\_66, Nivrat\_66, NormanBulbieJr\_69, OfUltron\_77, Ogopogo\_75, OlympiaSaint\_71, OwlsT2W\_72, PHappiness\_67, PMC\_63, Pacc40\_63, Phalconet\_65, Phasih\_66, Phatniss\_67, PhesterPhotato\_70, Philus\_74, Pippy\_69, Plumbus\_71, Poenanya\_69, Polka14\_70, Pollywog\_70, PopTart\_61, Priscilla\_70, QueenHazel\_56, Radiance\_68, Ramsey\_73, RedBird\_67, Renaud18\_81, Rialto\_77, RitaG\_67, Rita\_77, Rockne\_67, RockyHorror\_70, Royals2015\_76, Ruby\_65, SG4\_65, Saal\_71, Sabbb\_71, Sarma624\_68, Sassafra\_67, SassyB\_61, Sebastian\_77, ShiLan\_71, ShowerHandel\_73, ShroomBoi\_72, SimranZ1\_70, Soul22\_75, Sparkdehlily\_74, Spartacus\_73, Spoonbill\_70, StAnnes\_66, Stap\_66, Starcevich\_70, SuperGrey\_72, SwagPigglett\_75, TDanisky\_74, Taj\_72, ThetaBob\_74, Tootsieroll\_71, UncleRicky\_68, VRedHorse\_69, Velveteen\_65, Wachhund\_70, Wee\_72, Whouxphf\_68, WillSterrel\_72, Xula\_55, Yorick\_70, Yoshi\_84, Zapner\_80, Zerg\_70, Zizzle\_74,

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

- Blarby\_79, BodEinwohner17\_67, Boomer\_71, Deb65\_61, Donkeykong\_69, DotProduct\_61, Empress\_65, Firehouse51\_69, Geralt\_61, Girafales\_74, Hlubikazi\_62, Jabbawokkie\_81, Juice456\_68, Kimberlium\_71, KingMidas\_66, KristaRAM\_70, Mandlovu\_62, Melissauren88\_64, MilanaBonita\_56, MooMoo\_64, Ms6\_63, Nimbo\_60, OldBen\_64, Ovechkin\_66, Phanphagia\_62, QuickMath\_70, Quico\_74, Rialto\_72, Scottish\_65, Seagreen\_65, Shauna1\_64, SiSi\_64, Strokeseat\_62, TChen\_68, Whatsapiecost\_66,

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

- CaptainTrips\_68,

### Summary by start number:

Start 22:

- Found in 1 of 207 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 194
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Rialto\_72 (F1),

Start 25:

- Found in 7 of 207 ( 3.4% ) of genes in pham
- Manual Annotations of this start: 2 of 194
- Called 28.6% of time when present
- Phage (with cluster) where this start called: Boomer\_71 (F1), SiSi\_64 (F1),

Start 29:

- Found in 40 of 207 ( 19.3% ) of genes in pham
- Manual Annotations of this start: 23 of 194
- Called 65.0% of time when present
- Phage (with cluster) where this start called: Blarby\_79 (F), Deb65\_61 (F1), Donkeykong\_69 (F1), DotProduct\_61 (F1), Empress\_65 (F1), Firehouse51\_69 (F1), Girafales\_74 (F1), Hlubikazi\_62 (F1), Jabbawokkie\_81 (F2), Juice456\_68 (F1), Kimberlium\_71 (F1), KingMidas\_66 (F1), KristaRAM\_70 (F1), Mandlovu\_62 (F1), Melissauren88\_64 (F1), Ms6\_63 (F1), Nimbo\_60 (F1), OldBen\_64 (F1), Phanphagia\_62 (F1), QuickMath\_70 (F1), Quico\_74 (F1), Scottish\_65 (F1), Seagreen\_65 (F1), Shauna1\_64 (F1), Strokeseat\_62 (F1), TChen\_68 (F4),

Start 31:

- Found in 40 of 207 ( 19.3% ) of genes in pham
- Manual Annotations of this start: 5 of 194
- Called 12.5% of time when present
- Phage (with cluster) where this start called: BodEinwohner17\_67 (F1), Geralt\_61 (F1), MilanaBonita\_56 (F1), Ovechkin\_66 (F1), Whatsapiecost\_66 (F1),

Start 32:

- Found in 1 of 207 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 194
- Called 100.0% of time when present
- Phage (with cluster) where this start called: MooMoo\_64 (singleton),

Start 33:

- Found in 206 of 207 ( 99.5% ) of genes in pham
- Manual Annotations of this start: 161 of 194
- Called 83.0% of time when present
- Phage (with cluster) where this start called: Akhila\_57 (F1), AlpineSix\_76 (F1), ArcusAngelus\_75 (F1), Aubs\_71 (F1), Avani\_78 (F2), Beakin\_70 (F1), BigPhil\_66 (F1), Bipolar\_70 (F1), Blexus\_69 (F1), BlueCrab\_72 (F1), BobaPhett\_74 (F1), BodEinwohner17\_74 (F1), Brocalys\_64 (F1), Bubbles123\_67 (F1), Burwell21\_68 (F1), BuzzLyseyear\_76 (F1), ByChance\_65 (F1), Byougenkin\_70 (F1), Cabrinians\_71 (F1), Cerasum\_66 (F1), Che8\_74 (F1), Che9d\_81 (F2), Clifton\_64 (F1), Coco12\_69 (F1), Cornie\_67 (F5), Cornucopia\_71 (F1), Crumble\_65 (F1), DLane\_62 (F1), DRBy19\_75 (F1), DaWorst\_70 (F1), DaddyRickover\_68 (F1), Daenerys\_66 (F1), DeadP\_73 (F1), Demsculpinboyz\_81 (F2), DillTech15\_71 (F1), DirtMcgirt\_68 (F1), Doomphist\_69 (F1), Dorothy\_67 (F1), DosHalletts\_77 (F1), DotProduct\_70 (F1), Doug\_71 (F1), Drago\_66 (F1), Eish\_72 (F1), EleanorGeorge\_73 (F1), Emma\_72 (F1), Enby\_70 (F1), Estave1\_76 (F1), Fancypants\_74 (F1), Filuzino\_65 (F1), Flathead\_68 (F1), Florinda\_77 (F1), FreddyB\_78 (F1), Fruitloop\_63 (F1), Galactic\_69 (F1), Gandolph\_71 (F1), GigiOuiOui\_67 (F1), Girr\_67 (F1), Gorge\_73 (F1), HC\_57 (I1), Hades\_70 (F1), Hegedechwinu\_68 (F1), IbOuu\_69 (F1), Ibhubesi\_69 (F1), Inventum\_64 (F1), IrishSherpFalk\_72 (F1), JalFarm20\_80 (F1), James\_73 (F1), Jarcob\_71 (F1), JoeyJr\_67 (F1), Juniper1\_72 (F1), Karhdo\_68 (F1), Kenuha5\_70 (F1), Kersh\_71 (F1), Koella\_64 (F1), Krakatau\_65 (F1), LastJedi\_63 (F1),

Latretium\_69 (F1), Leozinho\_69 (F1), Leperchaun\_64 (F1), LilMoolah\_68 (F1), LittleShirley\_69 (F1), Lizziana\_75 (F1), Llama\_76 (F1), Llij\_65 (F1), Lorde\_69 (F1), LunaBlu\_72 (F1), LunaStella\_61 (F4), MadMen\_69 (F1), Madiba\_75 (F1), Mahavrat\_66 (F1), Mantra\_67 (F1), Maravista\_72 (F1), Marker\_77 (F1), Martik\_72 (F1), Mattes\_73 (F1), MilleniumForce\_69 (F1), MisterCuddles\_67 (F1), Moonbeam\_70 (F1), Mozy\_78 (F1), Mutaforma13\_75 (F1), Nitzel\_66 (F1), Nivrat\_66 (F1), NormanBulbieJr\_69 (F1), OfUltron\_77 (F1), Ogopogo\_75 (F1), OlympiaSaint\_71 (F1), OwlsT2W\_72 (F1), PHappiness\_67 (F1), PMC\_63 (F1), Pacc40\_63 (F1), Phalconet\_65 (F1), Phasih\_66 (F1), Phatniss\_67 (F1), PhesterPotato\_70 (F1), Philus\_74 (F1), Pippy\_69 (F1), Plumbus\_71 (F1), Poenanya\_69 (F1), Polka14\_70 (F1), Pollywog\_70 (F1), PopTart\_61 (F1), Priscilla\_70 (F1), QueenHazel\_56 (I1), Radiance\_68 (F1), Ramsey\_73 (F1), RedBird\_67 (F1), Renaud18\_81 (F4), Rialto\_77 (F1), RitaG\_67 (F1), Rita\_77 (F1), Rockne\_67 (F1), RockyHorror\_70 (F1), Royals2015\_76 (F1), Ruby\_65 (F1), SG4\_65 (F1), Saal\_71 (F1), Sabb\_71 (F1), Sarma624\_68 (F1), Sassafras\_67 (F1), SassyB\_61 (F1), Sebastian\_77 (F1), ShiLan\_71 (F1), ShowerHandel\_73 (F1), ShroomBoi\_72 (F1), SimranZ1\_70 (F1), Soul22\_75 (F2), Sparkdehily\_74 (F1), Spartacus\_73 (F1), Spoonbill\_70 (F1), StAnnes\_66 (F1), Stap\_66 (F1), Starceвич\_70 (F1), SuperGrey\_72 (F1), SwagPigglett\_75 (F1), TDanisky\_74 (F1), Taj\_72 (F1), ThetaBob\_74 (F4), Tootsieroll\_71 (F1), UncleRicky\_68 (F1), VRedHorse\_69 (F1), Velveteen\_65 (F1), Wachhund\_70 (F1), Wee\_72 (F1), Whouxphf\_68 (F1), WillSterrel\_72 (F1), Xula\_55 (I1), Yorick\_70 (F1), Yoshi\_84 (F2), Zapner\_80 (F2), Zerg\_70 (F1), Zizzle\_74 (F1),

Start 35:

- Found in 1 of 207 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 194
- Called 100.0% of time when present
- Phage (with cluster) where this start called: CaptainTrips\_68 (F1),

### Summary by clusters:

There are 7 clusters represented in this pham: F1, F2, F4, F5, F, I1, singleton,

Info for manual annotations of cluster F1:

- Start number 22 was manually annotated 1 time for cluster F1.
- Start number 25 was manually annotated 2 times for cluster F1.
- Start number 29 was manually annotated 21 times for cluster F1.
- Start number 31 was manually annotated 5 times for cluster F1.
- Start number 33 was manually annotated 149 times for cluster F1.
- Start number 35 was manually annotated 1 time for cluster F1.

Info for manual annotations of cluster F2:

- Start number 29 was manually annotated 1 time for cluster F2.
- Start number 33 was manually annotated 6 times for cluster F2.

Info for manual annotations of cluster F4:

- Start number 29 was manually annotated 1 time for cluster F4.
- Start number 33 was manually annotated 2 times for cluster F4.

Info for manual annotations of cluster F5:

- Start number 33 was manually annotated 1 time for cluster F5.

Info for manual annotations of cluster I1:

•Start number 33 was manually annotated 3 times for cluster I1.

**Gene Information:**

Gene: Akhila\_57 Start: 38323, Stop: 38493, Start Num: 33

Candidate Starts for Akhila\_57:

(Start: 29 @38308 has 23 MA's), (Start: 31 @38311 has 5 MA's), (Start: 33 @38323 has 161 MA's), (46, 38488),

Gene: AlpineSix\_76 Start: 47013, Stop: 47174, Start Num: 33

Candidate Starts for AlpineSix\_76:

(Start: 33 @47013 has 161 MA's), (42, 47160), (45, 47169),

Gene: ArcusAngelus\_75 Start: 45852, Stop: 46001, Start Num: 33

Candidate Starts for ArcusAngelus\_75:

(28, 45825), (Start: 33 @45852 has 161 MA's),

Gene: Aubs\_71 Start: 46411, Stop: 46581, Start Num: 33

Candidate Starts for Aubs\_71:

(Start: 33 @46411 has 161 MA's), (37, 46459), (45, 46576),

Gene: Avani\_78 Start: 43995, Stop: 44147, Start Num: 33

Candidate Starts for Avani\_78:

(19, 43872), (20, 43914), (Start: 33 @43995 has 161 MA's), (37, 44043),

Gene: Beakin\_70 Start: 42032, Stop: 42193, Start Num: 33

Candidate Starts for Beakin\_70:

(28, 42005), (Start: 33 @42032 has 161 MA's), (37, 42080), (42, 42179), (45, 42188),

Gene: BigPhil\_66 Start: 42387, Stop: 42536, Start Num: 33

Candidate Starts for BigPhil\_66:

(19, 42264), (20, 42306), (Start: 33 @42387 has 161 MA's),

Gene: Bipolar\_70 Start: 44365, Stop: 44526, Start Num: 33

Candidate Starts for Bipolar\_70:

(2, 44071), (4, 44089), (16, 44224), (Start: 33 @44365 has 161 MA's), (37, 44413), (42, 44512), (45, 44521),

Gene: Blarby\_79 Start: 44522, Stop: 44707, Start Num: 29

Candidate Starts for Blarby\_79:

(Start: 29 @44522 has 23 MA's), (Start: 31 @44525 has 5 MA's), (Start: 33 @44537 has 161 MA's), (46, 44702),

Gene: Blexus\_69 Start: 45969, Stop: 46121, Start Num: 33

Candidate Starts for Blexus\_69:

(7, 45717), (12, 45789), (19, 45846), (20, 45888), (Start: 33 @45969 has 161 MA's), (37, 46017),

Gene: BlueCrab\_72 Start: 46833, Stop: 46979, Start Num: 33

Candidate Starts for BlueCrab\_72:



(19, 46710), (20, 46752), (Start: 33 @46833 has 161 MA's),

Gene: BobaPhett\_74 Start: 48087, Stop: 48239, Start Num: 33

Candidate Starts for BobaPhett\_74:

(19, 47964), (20, 48006), (Start: 33 @48087 has 161 MA's), (37, 48135),

Gene: BodEinwohner17\_67 Start: 42886, Stop: 43068, Start Num: 31

Candidate Starts for BodEinwohner17\_67:

(Start: 29 @42883 has 23 MA's), (Start: 31 @42886 has 5 MA's), (Start: 33 @42898 has 161 MA's), (46, 43063),

Gene: BodEinwohner17\_74 Start: 46498, Stop: 46647, Start Num: 33

Candidate Starts for BodEinwohner17\_74:

(7, 46246), (12, 46318), (19, 46375), (20, 46417), (Start: 33 @46498 has 161 MA's), (36, 46510), (37, 46546),

Gene: Boomer\_71 Start: 44539, Stop: 44742, Start Num: 25

Candidate Starts for Boomer\_71:

(13, 44425), (Start: 25 @44539 has 2 MA's), (Start: 33 @44593 has 161 MA's),

Gene: Brocalys\_64 Start: 43567, Stop: 43719, Start Num: 33

Candidate Starts for Brocalys\_64:

(19, 43444), (20, 43486), (Start: 33 @43567 has 161 MA's), (37, 43615),

Gene: Bubbles123\_67 Start: 45600, Stop: 45761, Start Num: 33

Candidate Starts for Bubbles123\_67:

(Start: 33 @45600 has 161 MA's), (42, 45747), (45, 45756),

Gene: Burwell21\_68 Start: 45409, Stop: 45570, Start Num: 33

Candidate Starts for Burwell21\_68:

(19, 45286), (20, 45328), (Start: 33 @45409 has 161 MA's), (43, 45556), (45, 45565),

Gene: BuzzLyseyear\_76 Start: 47968, Stop: 48129, Start Num: 33

Candidate Starts for BuzzLyseyear\_76:

(6, 47716), (11, 47788), (19, 47845), (20, 47887), (Start: 33 @47968 has 161 MA's), (37, 48016), (43, 48115), (45, 48124),

Gene: ByChance\_65 Start: 42509, Stop: 42670, Start Num: 33

Candidate Starts for ByChance\_65:

(3, 42218), (17, 42365), (28, 42482), (Start: 33 @42509 has 161 MA's), (42, 42656), (45, 42665),

Gene: Byougenkin\_70 Start: 43469, Stop: 43630, Start Num: 33

Candidate Starts for Byougenkin\_70:

(19, 43346), (20, 43388), (Start: 33 @43469 has 161 MA's), (43, 43616), (45, 43625),

Gene: Cabrinians\_71 Start: 45488, Stop: 45640, Start Num: 33

Candidate Starts for Cabrinians\_71:

(19, 45365), (20, 45407), (Start: 33 @45488 has 161 MA's), (37, 45536),

Gene: CaptainTrips\_68 Start: 45233, Stop: 45385, Start Num: 35

Candidate Starts for CaptainTrips\_68:

(Start: 35 @45233 has 1 MA's), (42, 45371), (45, 45380),

Gene: Cerasum\_66 Start: 42405, Stop: 42554, Start Num: 33

Candidate Starts for Cerasum\_66:

(19, 42282), (20, 42324), (Start: 33 @42405 has 161 MA's),

Gene: Che8\_74 Start: 46033, Stop: 46194, Start Num: 33

Candidate Starts for Che8\_74:

(19, 45910), (20, 45952), (Start: 33 @46033 has 161 MA's), (43, 46180), (45, 46189),

Gene: Che9d\_81 Start: 45757, Stop: 45918, Start Num: 33

Candidate Starts for Che9d\_81:

(Start: 33 @45757 has 161 MA's), (42, 45904), (45, 45913),

Gene: Clifton\_64 Start: 43918, Stop: 44070, Start Num: 33

Candidate Starts for Clifton\_64:

(19, 43795), (20, 43837), (Start: 33 @43918 has 161 MA's), (37, 43966),

Gene: Coco12\_69 Start: 46462, Stop: 46611, Start Num: 33

Candidate Starts for Coco12\_69:

(19, 46339), (20, 46381), (Start: 33 @46462 has 161 MA's),

Gene: Cornie\_67 Start: 44180, Stop: 44350, Start Num: 33

Candidate Starts for Cornie\_67:

(19, 44057), (20, 44099), (Start: 33 @44180 has 161 MA's), (45, 44345),

Gene: Cornucopia\_71 Start: 44648, Stop: 44809, Start Num: 33

Candidate Starts for Cornucopia\_71:

(28, 44621), (Start: 33 @44648 has 161 MA's), (36, 44660), (42, 44795), (45, 44804),

Gene: Crumble\_65 Start: 41387, Stop: 41539, Start Num: 33

Candidate Starts for Crumble\_65:

(19, 41264), (20, 41306), (Start: 33 @41387 has 161 MA's),

Gene: DLane\_62 Start: 41867, Stop: 42037, Start Num: 33

Candidate Starts for DLane\_62:

(Start: 33 @41867 has 161 MA's), (46, 42032),

Gene: DRBy19\_75 Start: 47647, Stop: 47799, Start Num: 33

Candidate Starts for DRBy19\_75:

(19, 47524), (20, 47566), (Start: 33 @47647 has 161 MA's), (37, 47695),

Gene: DaWorst\_70 Start: 44987, Stop: 45139, Start Num: 33

Candidate Starts for DaWorst\_70:

(19, 44864), (20, 44906), (Start: 33 @44987 has 161 MA's), (37, 45035),

Gene: DaddyRickover\_68 Start: 43834, Stop: 44004, Start Num: 33

Candidate Starts for DaddyRickover\_68:

(7, 43582), (12, 43654), (19, 43711), (20, 43753), (Start: 33 @43834 has 161 MA's), (36, 43846), (37, 43882), (46, 43999),

Gene: Daenerys\_66 Start: 43953, Stop: 44123, Start Num: 33

Candidate Starts for Daenerys\_66:

(19, 43830), (20, 43872), (Start: 33 @43953 has 161 MA's), (36, 43965), (37, 44001), (46, 44118),

Gene: DeadP\_73 Start: 45281, Stop: 45451, Start Num: 33  
Candidate Starts for DeadP\_73:  
(Start: 29 @45266 has 23 MA's), (Start: 31 @45269 has 5 MA's), (Start: 33 @45281 has 161 MA's),  
(46, 45446),

Gene: Deb65\_61 Start: 41658, Stop: 41843, Start Num: 29  
Candidate Starts for Deb65\_61:  
(Start: 29 @41658 has 23 MA's), (Start: 31 @41661 has 5 MA's), (Start: 33 @41673 has 161 MA's),  
(46, 41838),

Gene: Demsculpinboyz\_81 Start: 43217, Stop: 43369, Start Num: 33  
Candidate Starts for Demsculpinboyz\_81:  
(19, 43094), (20, 43136), (Start: 33 @43217 has 161 MA's),

Gene: DillTech15\_71 Start: 43892, Stop: 44038, Start Num: 33  
Candidate Starts for DillTech15\_71:  
(28, 43865), (Start: 33 @43892 has 161 MA's), (37, 43940),

Gene: DirtMcgirt\_68 Start: 41996, Stop: 42148, Start Num: 33  
Candidate Starts for DirtMcgirt\_68:  
(20, 41915), (Start: 33 @41996 has 161 MA's), (37, 42044),

Gene: Donkeykong\_69 Start: 44827, Stop: 44994, Start Num: 29  
Candidate Starts for Donkeykong\_69:  
(Start: 29 @44827 has 23 MA's), (Start: 31 @44830 has 5 MA's), (Start: 33 @44842 has 161 MA's),

Gene: Doomphist\_69 Start: 44382, Stop: 44552, Start Num: 33  
Candidate Starts for Doomphist\_69:  
(7, 44130), (12, 44202), (19, 44259), (20, 44301), (Start: 33 @44382 has 161 MA's), (36, 44394), (37,  
44430), (46, 44547),

Gene: Dorothy\_67 Start: 43008, Stop: 43178, Start Num: 33  
Candidate Starts for Dorothy\_67:  
(7, 42756), (12, 42828), (19, 42885), (20, 42927), (Start: 33 @43008 has 161 MA's), (36, 43020), (37,  
43056), (46, 43173),

Gene: DosHalletts\_77 Start: 47252, Stop: 47413, Start Num: 33  
Candidate Starts for DosHalletts\_77:  
(2, 46958), (4, 46976), (16, 47111), (Start: 33 @47252 has 161 MA's), (42, 47399), (45, 47408),

Gene: DotProduct\_61 Start: 41161, Stop: 41346, Start Num: 29  
Candidate Starts for DotProduct\_61:  
(Start: 29 @41161 has 23 MA's), (Start: 31 @41164 has 5 MA's), (Start: 33 @41176 has 161 MA's),  
(46, 41341),

Gene: DotProduct\_70 Start: 45051, Stop: 45197, Start Num: 33  
Candidate Starts for DotProduct\_70:  
(19, 44928), (20, 44970), (Start: 33 @45051 has 161 MA's), (37, 45099),

Gene: Doug\_71 Start: 46867, Stop: 47019, Start Num: 33  
Candidate Starts for Doug\_71:  
(19, 46744), (20, 46786), (Start: 33 @46867 has 161 MA's), (37, 46915),

Gene: Drago\_66 Start: 41999, Stop: 42151, Start Num: 33  
Candidate Starts for Drago\_66:  
(20, 41918), (Start: 33 @41999 has 161 MA's), (37, 42047),

Gene: Eish\_72 Start: 45775, Stop: 45927, Start Num: 33  
Candidate Starts for Eish\_72:  
(19, 45652), (20, 45694), (Start: 33 @45775 has 161 MA's), (37, 45823),

Gene: EleanorGeorge\_73 Start: 45986, Stop: 46135, Start Num: 33  
Candidate Starts for EleanorGeorge\_73:  
(24, 45929), (27, 45953), (Start: 33 @45986 has 161 MA's), (36, 45998), (37, 46034),

Gene: Emma\_72 Start: 45010, Stop: 45171, Start Num: 33  
Candidate Starts for Emma\_72:  
(19, 44887), (20, 44929), (Start: 33 @45010 has 161 MA's), (37, 45058), (43, 45157), (45, 45166),

Gene: Empress\_65 Start: 43102, Stop: 43287, Start Num: 29  
Candidate Starts for Empress\_65:  
(Start: 29 @43102 has 23 MA's), (Start: 31 @43105 has 5 MA's), (Start: 33 @43117 has 161 MA's),  
(46, 43282),

Gene: Enby\_70 Start: 42275, Stop: 42427, Start Num: 33  
Candidate Starts for Enby\_70:  
(20, 42194), (Start: 33 @42275 has 161 MA's), (37, 42323),

Gene: Estave1\_76 Start: 48947, Stop: 49108, Start Num: 33  
Candidate Starts for Estave1\_76:  
(28, 48920), (Start: 33 @48947 has 161 MA's), (42, 49094), (45, 49103),

Gene: Fancypants\_74 Start: 47245, Stop: 47406, Start Num: 33  
Candidate Starts for Fancypants\_74:  
(28, 47218), (Start: 33 @47245 has 161 MA's), (42, 47392), (45, 47401),

Gene: Filuzino\_65 Start: 42202, Stop: 42372, Start Num: 33  
Candidate Starts for Filuzino\_65:  
(Start: 33 @42202 has 161 MA's), (46, 42367),

Gene: Firehouse51\_69 Start: 46723, Stop: 46908, Start Num: 29  
Candidate Starts for Firehouse51\_69:  
(Start: 29 @46723 has 23 MA's), (Start: 31 @46726 has 5 MA's), (Start: 33 @46738 has 161 MA's),  
(46, 46903),

Gene: Flathead\_68 Start: 43116, Stop: 43265, Start Num: 33  
Candidate Starts for Flathead\_68:  
(Start: 33 @43116 has 161 MA's), (36, 43128), (37, 43164),

Gene: Florinda\_77 Start: 44348, Stop: 44518, Start Num: 33  
Candidate Starts for Florinda\_77:  
(Start: 29 @44333 has 23 MA's), (Start: 31 @44336 has 5 MA's), (Start: 33 @44348 has 161 MA's),  
(46, 44513),

Gene: FreddyB\_78 Start: 46992, Stop: 47138, Start Num: 33  
Candidate Starts for FreddyB\_78:

(28, 46965), (Start: 33 @46992 has 161 MA's), (37, 47040),

Gene: Fruitloop\_63 Start: 43508, Stop: 43678, Start Num: 33

Candidate Starts for Fruitloop\_63:

(23, 43448), (30, 43496), (Start: 33 @43508 has 161 MA's), (46, 43673),

Gene: Galactic\_69 Start: 45269, Stop: 45430, Start Num: 33

Candidate Starts for Galactic\_69:

(28, 45242), (Start: 33 @45269 has 161 MA's), (37, 45317), (42, 45416), (45, 45425),

Gene: Gandalph\_71 Start: 43491, Stop: 43661, Start Num: 33

Candidate Starts for Gandalph\_71:

(19, 43368), (20, 43410), (Start: 33 @43491 has 161 MA's), (45, 43656),

Gene: Geralt\_61 Start: 41660, Stop: 41842, Start Num: 31

Candidate Starts for Geralt\_61:

(Start: 29 @41657 has 23 MA's), (Start: 31 @41660 has 5 MA's), (Start: 33 @41672 has 161 MA's), (46, 41837),

Gene: GigiOuiOui\_67 Start: 45142, Stop: 45288, Start Num: 33

Candidate Starts for GigiOuiOui\_67:

(28, 45115), (Start: 33 @45142 has 161 MA's), (37, 45190),

Gene: Girafales\_74 Start: 44124, Stop: 44309, Start Num: 29

Candidate Starts for Girafales\_74:

(Start: 29 @44124 has 23 MA's), (Start: 31 @44127 has 5 MA's), (Start: 33 @44139 has 161 MA's), (46, 44304),

Gene: Girr\_67 Start: 44930, Stop: 45082, Start Num: 33

Candidate Starts for Girr\_67:

(19, 44807), (20, 44849), (Start: 33 @44930 has 161 MA's),

Gene: Gorge\_73 Start: 46857, Stop: 47009, Start Num: 33

Candidate Starts for Gorge\_73:

(19, 46734), (20, 46776), (Start: 33 @46857 has 161 MA's), (37, 46905),

Gene: HC\_57 Start: 37781, Stop: 37933, Start Num: 33

Candidate Starts for HC\_57:

(Start: 33 @37781 has 161 MA's),

Gene: Hades\_70 Start: 44008, Stop: 44169, Start Num: 33

Candidate Starts for Hades\_70:

(2, 43714), (4, 43732), (16, 43867), (Start: 33 @44008 has 161 MA's), (42, 44155), (45, 44164),

Gene: Hegedechwinu\_68 Start: 42281, Stop: 42451, Start Num: 33

Candidate Starts for Hegedechwinu\_68:

(19, 42158), (20, 42200), (Start: 33 @42281 has 161 MA's), (45, 42446),

Gene: Hlubikazi\_62 Start: 40271, Stop: 40438, Start Num: 29

Candidate Starts for Hlubikazi\_62:

(Start: 29 @40271 has 23 MA's), (Start: 31 @40274 has 5 MA's), (Start: 33 @40286 has 161 MA's),

Gene: lbOuu\_69 Start: 43722, Stop: 43892, Start Num: 33

Candidate Starts for IbOuu\_69:

(Start: 29 @43707 has 23 MA's), (Start: 31 @43710 has 5 MA's), (Start: 33 @43722 has 161 MA's), (46, 43887),

Gene: Ibhubesi\_69 Start: 43257, Stop: 43418, Start Num: 33

Candidate Starts for Ibhubesi\_69:

(19, 43134), (20, 43176), (Start: 33 @43257 has 161 MA's), (43, 43404), (45, 43413),

Gene: Inventum\_64 Start: 43206, Stop: 43376, Start Num: 33

Candidate Starts for Inventum\_64:

(7, 42954), (12, 43026), (19, 43083), (20, 43125), (Start: 33 @43206 has 161 MA's), (36, 43218), (37, 43254), (46, 43371),

Gene: IrishSherpFalk\_72 Start: 46319, Stop: 46471, Start Num: 33

Candidate Starts for IrishSherpFalk\_72:

(28, 46292), (Start: 33 @46319 has 161 MA's), (36, 46331), (37, 46367),

Gene: Jabbawokkie\_81 Start: 44442, Stop: 44627, Start Num: 29

Candidate Starts for Jabbawokkie\_81:

(Start: 29 @44442 has 23 MA's), (Start: 31 @44445 has 5 MA's), (Start: 33 @44457 has 161 MA's), (46, 44622),

Gene: JalFarm20\_80 Start: 47075, Stop: 47227, Start Num: 33

Candidate Starts for JalFarm20\_80:

(Start: 29 @47060 has 23 MA's), (Start: 31 @47063 has 5 MA's), (Start: 33 @47075 has 161 MA's),

Gene: James\_73 Start: 46982, Stop: 47134, Start Num: 33

Candidate Starts for James\_73:

(19, 46859), (20, 46901), (Start: 33 @46982 has 161 MA's), (37, 47030),

Gene: Jarcoab\_71 Start: 46579, Stop: 46731, Start Num: 33

Candidate Starts for Jarcoab\_71:

(28, 46552), (Start: 33 @46579 has 161 MA's), (37, 46627),

Gene: JoeyJr\_67 Start: 44121, Stop: 44291, Start Num: 33

Candidate Starts for JoeyJr\_67:

(19, 43998), (20, 44040), (Start: 33 @44121 has 161 MA's), (36, 44133), (37, 44169), (46, 44286),

Gene: Juice456\_68 Start: 45016, Stop: 45183, Start Num: 29

Candidate Starts for Juice456\_68:

(Start: 29 @45016 has 23 MA's), (Start: 31 @45019 has 5 MA's), (Start: 33 @45031 has 161 MA's),

Gene: Juniper1\_72 Start: 45173, Stop: 45325, Start Num: 33

Candidate Starts for Juniper1\_72:

(7, 44921), (12, 44993), (19, 45050), (20, 45092), (Start: 33 @45173 has 161 MA's), (37, 45221),

Gene: Karhdo\_68 Start: 44270, Stop: 44422, Start Num: 33

Candidate Starts for Karhdo\_68:

(19, 44147), (20, 44189), (Start: 33 @44270 has 161 MA's), (37, 44318),

Gene: Kenuha5\_70 Start: 46860, Stop: 47006, Start Num: 33

Candidate Starts for Kenuha5\_70:

(28, 46833), (Start: 33 @46860 has 161 MA's), (37, 46908),

Gene: Kersh\_71 Start: 47433, Stop: 47594, Start Num: 33  
Candidate Starts for Kersh\_71:  
(19, 47310), (20, 47352), (Start: 33 @47433 has 161 MA's), (43, 47580), (45, 47589),

Gene: Kimberlium\_71 Start: 44613, Stop: 44798, Start Num: 29  
Candidate Starts for Kimberlium\_71:  
(Start: 29 @44613 has 23 MA's), (Start: 31 @44616 has 5 MA's), (Start: 33 @44628 has 161 MA's),  
(46, 44793),

Gene: KingMidas\_66 Start: 43518, Stop: 43703, Start Num: 29  
Candidate Starts for KingMidas\_66:  
(Start: 29 @43518 has 23 MA's), (Start: 31 @43521 has 5 MA's), (Start: 33 @43533 has 161 MA's),  
(46, 43698),

Gene: Koella\_64 Start: 41386, Stop: 41538, Start Num: 33  
Candidate Starts for Koella\_64:  
(19, 41263), (20, 41305), (Start: 33 @41386 has 161 MA's), (37, 41434),

Gene: Krakatau\_65 Start: 41751, Stop: 41903, Start Num: 33  
Candidate Starts for Krakatau\_65:  
(19, 41628), (20, 41670), (Start: 33 @41751 has 161 MA's),

Gene: KristaRAM\_70 Start: 45385, Stop: 45552, Start Num: 29  
Candidate Starts for KristaRAM\_70:  
(Start: 29 @45385 has 23 MA's), (Start: 31 @45388 has 5 MA's), (Start: 33 @45400 has 161 MA's),

Gene: LastJedi\_63 Start: 43961, Stop: 44113, Start Num: 33  
Candidate Starts for LastJedi\_63:  
(19, 43838), (20, 43880), (Start: 33 @43961 has 161 MA's), (37, 44009),

Gene: Latretium\_69 Start: 43401, Stop: 43562, Start Num: 33  
Candidate Starts for Latretium\_69:  
(Start: 33 @43401 has 161 MA's), (42, 43548), (45, 43557),

Gene: Leozinho\_69 Start: 42793, Stop: 42945, Start Num: 33  
Candidate Starts for Leozinho\_69:  
(20, 42712), (Start: 33 @42793 has 161 MA's), (37, 42841),

Gene: Leperchaun\_64 Start: 43351, Stop: 43521, Start Num: 33  
Candidate Starts for Leperchaun\_64:  
(19, 43228), (20, 43270), (Start: 33 @43351 has 161 MA's), (36, 43363), (37, 43399), (46, 43516),

Gene: LilMoolah\_68 Start: 45587, Stop: 45748, Start Num: 33  
Candidate Starts for LilMoolah\_68:  
(19, 45464), (20, 45506), (Start: 33 @45587 has 161 MA's), (43, 45734), (45, 45743),

Gene: LittleShirley\_69 Start: 43861, Stop: 44031, Start Num: 33  
Candidate Starts for LittleShirley\_69:  
(Start: 29 @43846 has 23 MA's), (Start: 31 @43849 has 5 MA's), (Start: 33 @43861 has 161 MA's),  
(46, 44026),

Gene: Lizziana\_75 Start: 46463, Stop: 46615, Start Num: 33

Candidate Starts for Lizziana\_75:  
(19, 46340), (20, 46382), (Start: 33 @46463 has 161 MA's), (37, 46511),

Gene: Llama\_76 Start: 46867, Stop: 47028, Start Num: 33  
Candidate Starts for Llama\_76:  
(Start: 33 @46867 has 161 MA's), (42, 47014), (45, 47023),

Gene: Llij\_65 Start: 42153, Stop: 42305, Start Num: 33  
Candidate Starts for Llij\_65:  
(20, 42072), (Start: 33 @42153 has 161 MA's), (37, 42201),

Gene: Lorde\_69 Start: 41440, Stop: 41592, Start Num: 33  
Candidate Starts for Lorde\_69:  
(20, 41359), (Start: 33 @41440 has 161 MA's), (37, 41488),

Gene: LunaBlu\_72 Start: 45927, Stop: 46088, Start Num: 33  
Candidate Starts for LunaBlu\_72:  
(28, 45900), (Start: 33 @45927 has 161 MA's), (37, 45975), (42, 46074), (45, 46083),

Gene: LunaStella\_61 Start: 42942, Stop: 43112, Start Num: 33  
Candidate Starts for LunaStella\_61:  
(Start: 29 @42927 has 23 MA's), (Start: 31 @42930 has 5 MA's), (Start: 33 @42942 has 161 MA's),  
(46, 43107),

Gene: MadMen\_69 Start: 44609, Stop: 44770, Start Num: 33  
Candidate Starts for MadMen\_69:  
(20, 44528), (Start: 33 @44609 has 161 MA's), (43, 44756), (45, 44765),

Gene: Madiba\_75 Start: 47424, Stop: 47570, Start Num: 33  
Candidate Starts for Madiba\_75:  
(28, 47397), (Start: 33 @47424 has 161 MA's), (37, 47472),

Gene: Mahavrat\_66 Start: 43382, Stop: 43534, Start Num: 33  
Candidate Starts for Mahavrat\_66:  
(19, 43259), (20, 43301), (Start: 33 @43382 has 161 MA's),

Gene: Mandlovu\_62 Start: 40213, Stop: 40380, Start Num: 29  
Candidate Starts for Mandlovu\_62:  
(Start: 29 @40213 has 23 MA's), (Start: 31 @40216 has 5 MA's), (Start: 33 @40228 has 161 MA's),

Gene: Mantra\_67 Start: 45221, Stop: 45382, Start Num: 33  
Candidate Starts for Mantra\_67:  
(19, 45098), (20, 45140), (Start: 33 @45221 has 161 MA's), (37, 45269), (43, 45368), (45, 45377),

Gene: Maravista\_72 Start: 47473, Stop: 47625, Start Num: 33  
Candidate Starts for Maravista\_72:  
(5, 47221), (10, 47293), (19, 47350), (20, 47392), (Start: 33 @47473 has 161 MA's), (37, 47521),

Gene: Marker\_77 Start: 43830, Stop: 43979, Start Num: 33  
Candidate Starts for Marker\_77:  
(19, 43707), (20, 43749), (Start: 33 @43830 has 161 MA's),

Gene: Martik\_72 Start: 46954, Stop: 47106, Start Num: 33



Candidate Starts for Martik\_72:  
(28, 46927), (Start: 33 @46954 has 161 MA's),

Gene: Mattes\_73 Start: 46982, Stop: 47134, Start Num: 33  
Candidate Starts for Mattes\_73:  
(19, 46859), (20, 46901), (Start: 33 @46982 has 161 MA's), (37, 47030),

Gene: Melissauren88\_64 Start: 41731, Stop: 41916, Start Num: 29  
Candidate Starts for Melissauren88\_64:  
(Start: 29 @41731 has 23 MA's), (Start: 31 @41734 has 5 MA's), (Start: 33 @41746 has 161 MA's),  
(46, 41911),

Gene: MilanaBonita\_56 Start: 38311, Stop: 38493, Start Num: 31  
Candidate Starts for MilanaBonita\_56:  
(Start: 29 @38308 has 23 MA's), (Start: 31 @38311 has 5 MA's), (Start: 33 @38323 has 161 MA's),  
(46, 38488),

Gene: MilleniumForce\_69 Start: 44467, Stop: 44616, Start Num: 33  
Candidate Starts for MilleniumForce\_69:  
(13, 44299), (Start: 25 @44413 has 2 MA's), (Start: 33 @44467 has 161 MA's),

Gene: MisterCuddles\_67 Start: 44930, Stop: 45082, Start Num: 33  
Candidate Starts for MisterCuddles\_67:  
(19, 44807), (20, 44849), (Start: 33 @44930 has 161 MA's),

Gene: MooMoo\_64 Start: 41812, Stop: 41967, Start Num: 32  
Candidate Starts for MooMoo\_64:  
(Start: 32 @41812 has 1 MA's), (Start: 33 @41815 has 161 MA's), (34, 41821), (38, 41881), (40,  
41956),

Gene: Moonbeam\_70 Start: 46039, Stop: 46200, Start Num: 33  
Candidate Starts for Moonbeam\_70:  
(28, 46012), (Start: 33 @46039 has 161 MA's), (42, 46186), (45, 46195),

Gene: Mozy\_78 Start: 45447, Stop: 45617, Start Num: 33  
Candidate Starts for Mozy\_78:  
(19, 45324), (20, 45366), (Start: 33 @45447 has 161 MA's), (47, 45612),

Gene: Ms6\_63 Start: 38096, Stop: 38281, Start Num: 29  
Candidate Starts for Ms6\_63:  
(Start: 29 @38096 has 23 MA's), (Start: 31 @38099 has 5 MA's), (Start: 33 @38111 has 161 MA's),  
(46, 38276),

Gene: Mutaforma13\_75 Start: 46641, Stop: 46802, Start Num: 33  
Candidate Starts for Mutaforma13\_75:  
(28, 46614), (Start: 33 @46641 has 161 MA's), (37, 46689), (42, 46788), (45, 46797),

Gene: Nimbo\_60 Start: 41660, Stop: 41845, Start Num: 29  
Candidate Starts for Nimbo\_60:  
(Start: 29 @41660 has 23 MA's), (Start: 31 @41663 has 5 MA's), (Start: 33 @41675 has 161 MA's),  
(46, 41840),

Gene: Nitzel\_66 Start: 42992, Stop: 43153, Start Num: 33

Candidate Starts for Nitzel\_66:  
(Start: 33 @42992 has 161 MA's), (42, 43139), (45, 43148),

Gene: Nivrat\_66 Start: 45460, Stop: 45621, Start Num: 33  
Candidate Starts for Nivrat\_66:  
(19, 45337), (20, 45379), (Start: 33 @45460 has 161 MA's), (43, 45607), (45, 45616),

Gene: NormanBulbieJr\_69 Start: 45400, Stop: 45552, Start Num: 33  
Candidate Starts for NormanBulbieJr\_69:  
(19, 45277), (20, 45319), (Start: 33 @45400 has 161 MA's), (37, 45448),

Gene: OfUltron\_77 Start: 47012, Stop: 47173, Start Num: 33  
Candidate Starts for OfUltron\_77:  
(Start: 33 @47012 has 161 MA's), (42, 47159), (45, 47168),

Gene: Ogotopogo\_75 Start: 44807, Stop: 44959, Start Num: 33  
Candidate Starts for Ogotopogo\_75:  
(14, 44648), (18, 44678), (21, 44732), (Start: 33 @44807 has 161 MA's),

Gene: OldBen\_64 Start: 43053, Stop: 43238, Start Num: 29  
Candidate Starts for OldBen\_64:  
(Start: 29 @43053 has 23 MA's), (Start: 31 @43056 has 5 MA's), (Start: 33 @43068 has 161 MA's),  
(46, 43233),

Gene: OlympiaSaint\_71 Start: 45924, Stop: 46076, Start Num: 33  
Candidate Starts for OlympiaSaint\_71:  
(19, 45801), (20, 45843), (Start: 33 @45924 has 161 MA's), (37, 45972),

Gene: Ovechkin\_66 Start: 43050, Stop: 43232, Start Num: 31  
Candidate Starts for Ovechkin\_66:  
(Start: 29 @43047 has 23 MA's), (Start: 31 @43050 has 5 MA's), (Start: 33 @43062 has 161 MA's),  
(46, 43227),

Gene: OwlsT2W\_72 Start: 45753, Stop: 45914, Start Num: 33  
Candidate Starts for OwlsT2W\_72:  
(2, 45459), (4, 45477), (16, 45612), (Start: 33 @45753 has 161 MA's), (42, 45900), (45, 45909),

Gene: PHappiness\_67 Start: 43897, Stop: 44067, Start Num: 33  
Candidate Starts for PHappiness\_67:  
(19, 43774), (20, 43816), (Start: 33 @43897 has 161 MA's), (36, 43909), (37, 43945), (46, 44062),

Gene: PMC\_63 Start: 42817, Stop: 42966, Start Num: 33  
Candidate Starts for PMC\_63:  
(13, 42649), (Start: 25 @42763 has 2 MA's), (Start: 33 @42817 has 161 MA's),

Gene: Pacc40\_63 Start: 45487, Stop: 45648, Start Num: 33  
Candidate Starts for Pacc40\_63:  
(19, 45364), (20, 45406), (Start: 33 @45487 has 161 MA's), (43, 45634), (45, 45643),

Gene: Phalconet\_65 Start: 42051, Stop: 42203, Start Num: 33  
Candidate Starts for Phalconet\_65:  
(Start: 33 @42051 has 161 MA's),

Gene: Phanphagia\_62 Start: 42593, Stop: 42778, Start Num: 29  
Candidate Starts for Phanphagia\_62:  
(Start: 29 @42593 has 23 MA's), (Start: 31 @42596 has 5 MA's), (Start: 33 @42608 has 161 MA's),  
(46, 42773),

Gene: Phasih\_66 Start: 44131, Stop: 44292, Start Num: 33  
Candidate Starts for Phasih\_66:  
(28, 44104), (Start: 33 @44131 has 161 MA's), (42, 44278), (45, 44287),

Gene: Phatniss\_67 Start: 43248, Stop: 43400, Start Num: 33  
Candidate Starts for Phatniss\_67:  
(20, 43167), (Start: 33 @43248 has 161 MA's), (37, 43296),

Gene: PhesterPhotato\_70 Start: 43772, Stop: 43924, Start Num: 33  
Candidate Starts for PhesterPhotato\_70:  
(Start: 29 @43757 has 23 MA's), (Start: 31 @43760 has 5 MA's), (Start: 33 @43772 has 161 MA's),

Gene: Philus\_74 Start: 47623, Stop: 47775, Start Num: 33  
Candidate Starts for Philus\_74:  
(19, 47500), (20, 47542), (Start: 33 @47623 has 161 MA's), (37, 47671),

Gene: Pippy\_69 Start: 44697, Stop: 44849, Start Num: 33  
Candidate Starts for Pippy\_69:  
(19, 44574), (20, 44616), (Start: 33 @44697 has 161 MA's), (37, 44745),

Gene: Plumbus\_71 Start: 43179, Stop: 43340, Start Num: 33  
Candidate Starts for Plumbus\_71:  
(19, 43056), (20, 43098), (Start: 33 @43179 has 161 MA's), (43, 43326), (45, 43335),

Gene: Poenanya\_69 Start: 44382, Stop: 44552, Start Num: 33  
Candidate Starts for Poenanya\_69:  
(7, 44130), (12, 44202), (19, 44259), (20, 44301), (Start: 33 @44382 has 161 MA's), (36, 44394), (37,  
44430), (46, 44547),

Gene: Polka14\_70 Start: 45098, Stop: 45268, Start Num: 33  
Candidate Starts for Polka14\_70:  
(7, 44846), (12, 44918), (19, 44975), (20, 45017), (Start: 33 @45098 has 161 MA's), (36, 45110), (37,  
45146), (46, 45263),

Gene: Pollywog\_70 Start: 45650, Stop: 45802, Start Num: 33  
Candidate Starts for Pollywog\_70:  
(9, 45440), (19, 45527), (20, 45569), (Start: 33 @45650 has 161 MA's), (37, 45698),

Gene: PopTart\_61 Start: 41512, Stop: 41682, Start Num: 33  
Candidate Starts for PopTart\_61:  
(Start: 33 @41512 has 161 MA's), (46, 41677),

Gene: Priscilla\_70 Start: 45498, Stop: 45650, Start Num: 33  
Candidate Starts for Priscilla\_70:  
(19, 45375), (20, 45417), (Start: 33 @45498 has 161 MA's), (37, 45546),

Gene: QueenHazel\_56 Start: 39398, Stop: 39550, Start Num: 33  
Candidate Starts for QueenHazel\_56:

(Start: 33 @39398 has 161 MA's),

Gene: QuickMath\_70 Start: 44836, Stop: 45021, Start Num: 29

Candidate Starts for QuickMath\_70:

(Start: 29 @44836 has 23 MA's), (Start: 31 @44839 has 5 MA's), (Start: 33 @44851 has 161 MA's), (46, 45016),

Gene: Quico\_74 Start: 44153, Stop: 44338, Start Num: 29

Candidate Starts for Quico\_74:

(Start: 29 @44153 has 23 MA's), (Start: 31 @44156 has 5 MA's), (Start: 33 @44168 has 161 MA's), (46, 44333),

Gene: Radiance\_68 Start: 46270, Stop: 46422, Start Num: 33

Candidate Starts for Radiance\_68:

(7, 46018), (12, 46090), (19, 46147), (20, 46189), (Start: 33 @46270 has 161 MA's), (36, 46282), (37, 46318),

Gene: Ramsey\_73 Start: 47728, Stop: 47874, Start Num: 33

Candidate Starts for Ramsey\_73:

(28, 47701), (Start: 33 @47728 has 161 MA's), (37, 47776),

Gene: RedBird\_67 Start: 42887, Stop: 43057, Start Num: 33

Candidate Starts for RedBird\_67:

(7, 42635), (12, 42707), (19, 42764), (20, 42806), (Start: 33 @42887 has 161 MA's), (36, 42899), (37, 42935), (46, 43052),

Gene: Renaud18\_81 Start: 46849, Stop: 47010, Start Num: 33

Candidate Starts for Renaud18\_81:

(19, 46726), (20, 46768), (Start: 33 @46849 has 161 MA's), (39, 46993), (41, 46996), (44, 47005),

Gene: Rialto\_77 Start: 47120, Stop: 47266, Start Num: 33

Candidate Starts for Rialto\_77:

(2, 46826), (4, 46844), (16, 46979), (Start: 33 @47120 has 161 MA's),

Gene: Rialto\_72 Start: 45717, Stop: 45953, Start Num: 22

Candidate Starts for Rialto\_72:

(Start: 22 @45717 has 1 MA's), (Start: 33 @45783 has 161 MA's), (46, 45948),

Gene: Rita\_77 Start: 47516, Stop: 47668, Start Num: 33

Candidate Starts for Rita\_77:

(28, 47489), (Start: 33 @47516 has 161 MA's), (37, 47564),

Gene: RitaG\_67 Start: 44242, Stop: 44412, Start Num: 33

Candidate Starts for RitaG\_67:

(19, 44119), (20, 44161), (Start: 33 @44242 has 161 MA's), (36, 44254), (37, 44290), (46, 44407),

Gene: Rockne\_67 Start: 42829, Stop: 42978, Start Num: 33

Candidate Starts for Rockne\_67:

(13, 42661), (Start: 25 @42775 has 2 MA's), (Start: 33 @42829 has 161 MA's),

Gene: RockyHorror\_70 Start: 44803, Stop: 44955, Start Num: 33

Candidate Starts for RockyHorror\_70:

(19, 44680), (20, 44722), (Start: 33 @44803 has 161 MA's), (37, 44851),

Gene: Royals2015\_76 Start: 45773, Stop: 45934, Start Num: 33  
Candidate Starts for Royals2015\_76:  
(2, 45479), (4, 45497), (16, 45632), (Start: 33 @45773 has 161 MA's), (42, 45920), (45, 45929),

Gene: Ruby\_65 Start: 44931, Stop: 45083, Start Num: 33  
Candidate Starts for Ruby\_65:  
(19, 44808), (20, 44850), (Start: 33 @44931 has 161 MA's),

Gene: SG4\_65 Start: 42663, Stop: 42824, Start Num: 33  
Candidate Starts for SG4\_65:  
(Start: 33 @42663 has 161 MA's), (37, 42711), (42, 42810), (45, 42819),

Gene: Saal\_71 Start: 46676, Stop: 46828, Start Num: 33  
Candidate Starts for Saal\_71:  
(19, 46553), (20, 46595), (Start: 33 @46676 has 161 MA's), (37, 46724),

Gene: Sabbb\_71 Start: 43440, Stop: 43586, Start Num: 33  
Candidate Starts for Sabbb\_71:  
(19, 43317), (20, 43359), (Start: 33 @43440 has 161 MA's),

Gene: Sarma624\_68 Start: 42387, Stop: 42548, Start Num: 33  
Candidate Starts for Sarma624\_68:  
(19, 42264), (20, 42306), (Start: 33 @42387 has 161 MA's), (37, 42435), (43, 42534), (45, 42543),

Gene: Sassafras\_67 Start: 43205, Stop: 43375, Start Num: 33  
Candidate Starts for Sassafras\_67:  
(7, 42953), (12, 43025), (19, 43082), (20, 43124), (Start: 33 @43205 has 161 MA's), (36, 43217), (37, 43253), (46, 43370),

Gene: SassyB\_61 Start: 41512, Stop: 41682, Start Num: 33  
Candidate Starts for SassyB\_61:  
(Start: 33 @41512 has 161 MA's), (46, 41677),

Gene: Scottish\_65 Start: 42773, Stop: 42958, Start Num: 29  
Candidate Starts for Scottish\_65:  
(Start: 29 @42773 has 23 MA's), (Start: 31 @42776 has 5 MA's), (Start: 33 @42788 has 161 MA's),  
(46, 42953),

Gene: Seabastian\_77 Start: 47013, Stop: 47174, Start Num: 33  
Candidate Starts for Seabastian\_77:  
(Start: 33 @47013 has 161 MA's), (42, 47160), (45, 47169),

Gene: Seagreen\_65 Start: 41962, Stop: 42147, Start Num: 29  
Candidate Starts for Seagreen\_65:  
(Start: 29 @41962 has 23 MA's), (Start: 31 @41965 has 5 MA's), (Start: 33 @41977 has 161 MA's),  
(46, 42142),

Gene: Shauna1\_64 Start: 42502, Stop: 42687, Start Num: 29  
Candidate Starts for Shauna1\_64:  
(Start: 29 @42502 has 23 MA's), (Start: 31 @42505 has 5 MA's), (Start: 33 @42517 has 161 MA's),  
(46, 42682),

Gene: ShiLan\_71 Start: 47509, Stop: 47661, Start Num: 33

Candidate Starts for ShiLan\_71:

(28, 47482), (Start: 33 @47509 has 161 MA's),

Gene: ShowerHandel\_73 Start: 46449, Stop: 46610, Start Num: 33

Candidate Starts for ShowerHandel\_73:

(3, 46158), (17, 46305), (28, 46422), (Start: 33 @46449 has 161 MA's), (42, 46596), (45, 46605),

Gene: ShroomBoi\_72 Start: 46172, Stop: 46342, Start Num: 33

Candidate Starts for ShroomBoi\_72:

(Start: 33 @46172 has 161 MA's), (37, 46220), (45, 46337),

Gene: SiSi\_64 Start: 41555, Stop: 41758, Start Num: 25

Candidate Starts for SiSi\_64:

(13, 41441), (Start: 25 @41555 has 2 MA's), (Start: 33 @41609 has 161 MA's),

Gene: SimranZ1\_70 Start: 44869, Stop: 45021, Start Num: 33

Candidate Starts for SimranZ1\_70:

(19, 44746), (20, 44788), (Start: 33 @44869 has 161 MA's), (37, 44917),

Gene: Soul22\_75 Start: 44409, Stop: 44579, Start Num: 33

Candidate Starts for Soul22\_75:

(19, 44286), (20, 44328), (Start: 33 @44409 has 161 MA's), (45, 44574),

Gene: Sparkdehlily\_74 Start: 44296, Stop: 44466, Start Num: 33

Candidate Starts for Sparkdehlily\_74:

(Start: 33 @44296 has 161 MA's), (46, 44461),

Gene: Spartacus\_73 Start: 46515, Stop: 46664, Start Num: 33

Candidate Starts for Spartacus\_73:

(19, 46392), (20, 46434), (Start: 33 @46515 has 161 MA's),

Gene: Spoonbill\_70 Start: 43968, Stop: 44120, Start Num: 33

Candidate Starts for Spoonbill\_70:

(19, 43845), (20, 43887), (Start: 33 @43968 has 161 MA's), (37, 44016),

Gene: StAnnes\_66 Start: 43731, Stop: 43901, Start Num: 33

Candidate Starts for StAnnes\_66:

(Start: 33 @43731 has 161 MA's), (46, 43896),

Gene: Stap\_66 Start: 43094, Stop: 43255, Start Num: 33

Candidate Starts for Stap\_66:

(6, 42842), (11, 42914), (19, 42971), (20, 43013), (Start: 33 @43094 has 161 MA's), (43, 43241), (45, 43250),

Gene: Starcevich\_70 Start: 46804, Stop: 46965, Start Num: 33

Candidate Starts for Starcevich\_70:

(28, 46777), (Start: 33 @46804 has 161 MA's), (42, 46951), (45, 46960),

Gene: Strokeseat\_62 Start: 40270, Stop: 40437, Start Num: 29

Candidate Starts for Strokeseat\_62:

(Start: 29 @40270 has 23 MA's), (Start: 31 @40273 has 5 MA's), (Start: 33 @40285 has 161 MA's),

Gene: SuperGrey\_72 Start: 47487, Stop: 47642, Start Num: 33  
Candidate Starts for SuperGrey\_72:  
(6, 47238), (8, 47268), (19, 47364), (20, 47406), (Start: 33 @47487 has 161 MA's),

Gene: SwagPiggett\_75 Start: 47717, Stop: 47869, Start Num: 33  
Candidate Starts for SwagPiggett\_75:  
(19, 47594), (20, 47636), (Start: 33 @47717 has 161 MA's), (37, 47765),

Gene: TChen\_68 Start: 44878, Stop: 45063, Start Num: 29  
Candidate Starts for TChen\_68:  
(Start: 29 @44878 has 23 MA's), (Start: 31 @44881 has 5 MA's), (Start: 33 @44893 has 161 MA's),  
(46, 45058),

Gene: TDanisky\_74 Start: 44296, Stop: 44466, Start Num: 33  
Candidate Starts for TDanisky\_74:  
(Start: 33 @44296 has 161 MA's), (46, 44461),

Gene: Taj\_72 Start: 45051, Stop: 45221, Start Num: 33  
Candidate Starts for Taj\_72:  
(Start: 33 @45051 has 161 MA's), (46, 45216),

Gene: ThetaBob\_74 Start: 44655, Stop: 44804, Start Num: 33  
Candidate Starts for ThetaBob\_74:  
(13, 44487), (Start: 25 @44601 has 2 MA's), (Start: 33 @44655 has 161 MA's),

Gene: Tootsieroll\_71 Start: 46906, Stop: 47058, Start Num: 33  
Candidate Starts for Tootsieroll\_71:  
(7, 46654), (12, 46726), (19, 46783), (20, 46825), (Start: 33 @46906 has 161 MA's), (36, 46918), (37, 46954),

Gene: UncleRicky\_68 Start: 43496, Stop: 43648, Start Num: 33  
Candidate Starts for UncleRicky\_68:  
(20, 43415), (Start: 33 @43496 has 161 MA's), (37, 43544),

Gene: VRedHorse\_69 Start: 43466, Stop: 43627, Start Num: 33  
Candidate Starts for VRedHorse\_69:  
(28, 43439), (Start: 33 @43466 has 161 MA's), (36, 43478), (42, 43613), (45, 43622),

Gene: Velveteen\_65 Start: 42387, Stop: 42548, Start Num: 33  
Candidate Starts for Velveteen\_65:  
(19, 42264), (20, 42306), (Start: 33 @42387 has 161 MA's), (37, 42435), (43, 42534), (45, 42543),

Gene: Wachhund\_70 Start: 44052, Stop: 44204, Start Num: 33  
Candidate Starts for Wachhund\_70:  
(28, 44025), (Start: 33 @44052 has 161 MA's), (37, 44100),

Gene: Wee\_72 Start: 45127, Stop: 45297, Start Num: 33  
Candidate Starts for Wee\_72:  
(Start: 33 @45127 has 161 MA's), (46, 45292),

Gene: Whatsapiecost\_66 Start: 41686, Stop: 41868, Start Num: 31  
Candidate Starts for Whatsapiecost\_66:

(Start: 29 @41683 has 23 MA's), (Start: 31 @41686 has 5 MA's), (Start: 33 @41698 has 161 MA's), (46, 41863),

Gene: Whouxphf\_68 Start: 45485, Stop: 45646, Start Num: 33

Candidate Starts for Whouxphf\_68:

(1, 45176), (Start: 25 @45428 has 2 MA's), (26, 45452), (Start: 33 @45485 has 161 MA's), (37, 45533), (43, 45632), (45, 45641),

Gene: WillSterrel\_72 Start: 46352, Stop: 46504, Start Num: 33

Candidate Starts for WillSterrel\_72:

(28, 46325), (Start: 33 @46352 has 161 MA's), (36, 46364), (37, 46400),

Gene: Xula\_55 Start: 39019, Stop: 39171, Start Num: 33

Candidate Starts for Xula\_55:

(Start: 33 @39019 has 161 MA's),

Gene: Yorick\_70 Start: 46877, Stop: 47029, Start Num: 33

Candidate Starts for Yorick\_70:

(28, 46850), (Start: 33 @46877 has 161 MA's), (37, 46925),

Gene: Yoshi\_84 Start: 45121, Stop: 45270, Start Num: 33

Candidate Starts for Yoshi\_84:

(15, 44974), (19, 44998), (20, 45040), (Start: 33 @45121 has 161 MA's), (37, 45169),

Gene: Zapner\_80 Start: 44551, Stop: 44721, Start Num: 33

Candidate Starts for Zapner\_80:

(Start: 29 @44536 has 23 MA's), (Start: 31 @44539 has 5 MA's), (Start: 33 @44551 has 161 MA's), (46, 44716),

Gene: Zerg\_70 Start: 45624, Stop: 45785, Start Num: 33

Candidate Starts for Zerg\_70:

(2, 45330), (4, 45348), (16, 45483), (Start: 33 @45624 has 161 MA's), (42, 45771), (45, 45780),

Gene: Zizzle\_74 Start: 47005, Stop: 47157, Start Num: 33

Candidate Starts for Zizzle\_74:

(19, 46882), (20, 46924), (Start: 33 @47005 has 161 MA's), (37, 47053),