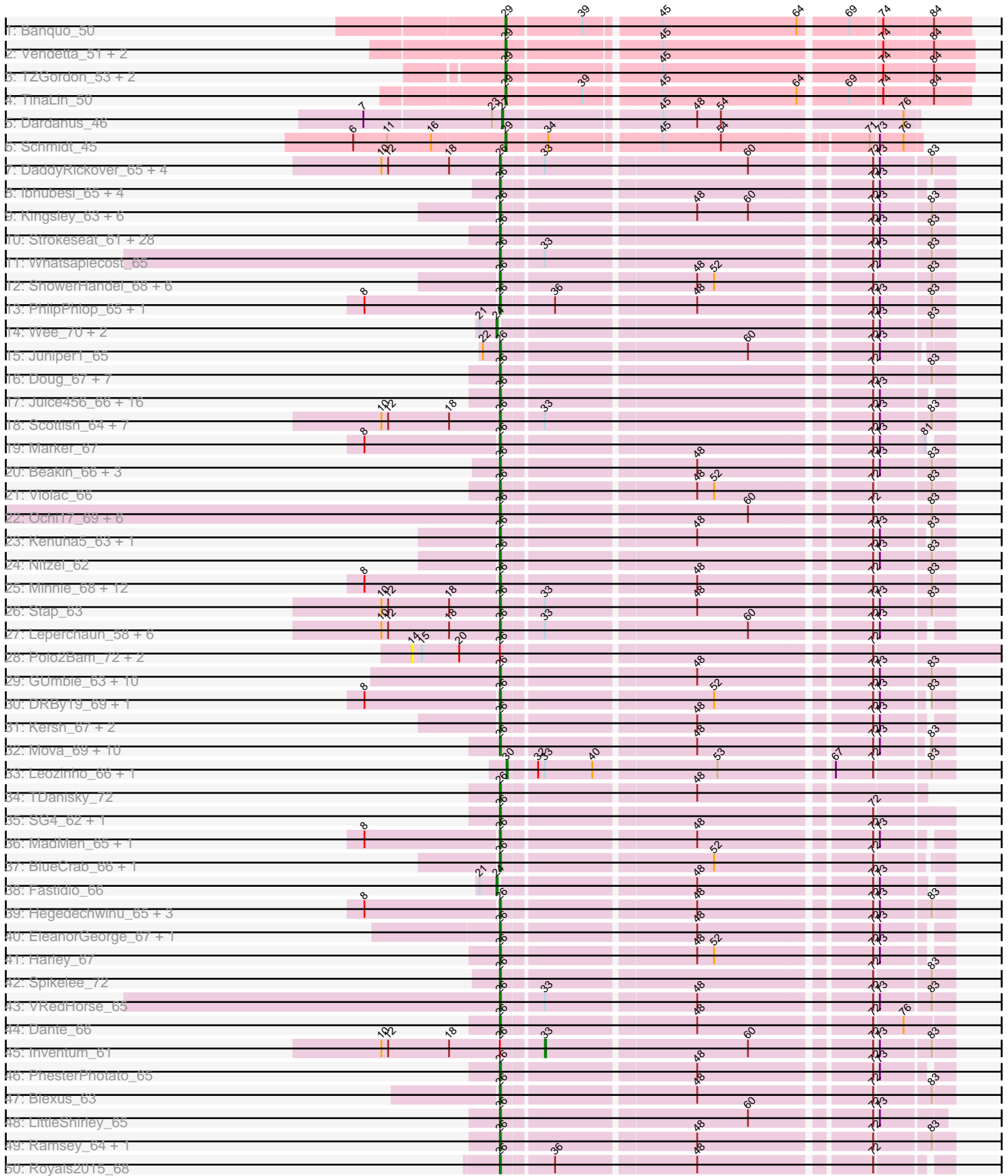


Pham 304686





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 304686 Report

This analysis was run 06/08/26 on database version 649.

Pham number 304686 has 251 members, 15 are drafts.

Phages represented in each track:

- Track 1 : Banquo\_50
- Track 2 : Vendetta\_51, Goib\_52, Splinter\_51
- Track 3 : TZGordon\_53, Huffy\_52, DinoDaryn\_52
- Track 4 : TinaLin\_50
- Track 5 : Dardanus\_46
- Track 6 : Schmidt\_45
- Track 7 : DaddyRickover\_65, KingMidas\_65, Sassafras\_64, RedBird\_64, Dorothy\_64
- Track 8 : Ibhubesi\_65, Brushbloom\_67, Bobi\_69, Batiatus\_63, MilleniumForce\_68
- Track 9 : Kingsley\_63, Coco12\_65, Cerasum\_62, Brookers\_63, BigPhil\_62, Sarma624\_64, Velveteen\_61
- Track 10 : Strokeseat\_61, SassyB\_59, Ovechkin\_65, DotProduct\_60, Donkeykong\_68, Hlubikazi\_61, WillSterrel\_66, Girafales\_73, Florinda\_76, Shauna1\_63, Spartacus\_67, Emmaloid\_67, Ms6\_62, IrishSherpFalk\_66, Flathead\_66, PopTart\_59, Seagreen\_64, Filuzino\_63, Chevrolet\_70, Phalconet\_63, Plumbus\_68, DLane\_60, StAnnes\_63, Melissauren88\_63, Slim\_67, Quico\_73, Rialto\_70, Phanphagia\_61, Mandlovu\_61
- Track 11 : Whatsapiecost\_65
- Track 12 : ShowerHandel\_68, Zizzle\_69, Crumble\_60, BobaPhett\_69, Maravista\_67, ByChance\_58, Pippy\_64
- Track 13 : PhlipPhlop\_65, Vivum\_66
- Track 14 : Wee\_70, DeadP\_72, Taj\_70
- Track 15 : Juniper1\_65
- Track 16 : Doug\_67, Girr\_63, Ruby\_61, MisterCuddles\_63, Zerg\_65, RockyHorror\_66, Alexphander\_69, XFactor\_63
- Track 17 : Juice456\_66, Boomer\_70, Kimberlium\_70, Jant\_69, SiSi\_63, QuickMath\_69, Hamulus\_65, JalFarm20\_78, Byougenkin\_65, KristaRAM\_68, MulchExplorer\_69, Chuckly\_68, Ardmore\_57, PMC\_62, Rockne\_66, Avani\_73, Starcevich\_65
- Track 18 : Scottish\_64, IbOuu\_65, Deb65\_60, BodEinwohner17\_66, Geralt\_60, Empress\_64, Nimbo\_59, OldBen\_63
- Track 19 : Marker\_67
- Track 20 : Beakin\_66, Soul22\_71, Guppsters\_66, Hades\_66
- Track 21 : Violac\_66
- Track 22 : Ochi17\_69, Llama\_70, Jinglebell\_71, AlpineSix\_71, Modragons\_69, Seabastian\_71, OfUltron\_71
- Track 23 : Kenuha5\_63, SuperGrey\_69

- Track 24 : Nitzel\_62
- Track 25 : Minnie\_68, Burwell21\_63, LastJedi\_59, LilMoolah\_64, Clifton\_60, Aubs\_65, SwagPiggett\_70, Sandalphon\_66, CaptainTrips\_63, MinionDave\_64, Pacc40\_59, Brocalys\_60, Nivrat\_62
- Track 26 : Stap\_63
- Track 27 : Leperchaun\_58, JoeyJr\_61, PHappiness\_61, Daenerys\_60, Polka14\_64, Spoonbill\_63, RitaG\_61
- Track 28 : Polo2Bam\_72, SeaLumen\_70, Enzomatic\_73
- Track 29 : GUmble\_63, BuzzLyseyear\_71, Lizziana\_71, Saal\_67, Eradicator\_58, Che8\_70, Gorge\_69, OlympiaSaint\_67, Mattes\_69, James\_69, Tchotchke\_64
- Track 30 : DRBy19\_69, Philus\_69
- Track 31 : Kersh\_67, ShiLan\_64, Che9d\_75
- Track 32 : Mova\_69, Totinger\_65, UncleRicky\_64, Llij\_61, DirtMcgirt\_64, ArcusAngelus\_67, Enby\_66, Lorde\_65, Phatniss\_63, Drago\_62, Radiance\_64
- Track 33 : Leozinho\_66, MadMen\_67
- Track 34 : TDanisky\_72
- Track 35 : SG4\_62, Mahavrat\_62
- Track 36 : MadMen\_65, Martik\_65
- Track 37 : BlueCrab\_66, FreddyB\_66
- Track 38 : Fastidio\_66
- Track 39 : Hegedechwinu\_65, Gandalph\_68, Topiatin\_72, Doomslug\_74
- Track 40 : EleanorGeorge\_67, Leozinho\_64
- Track 41 : Harley\_67
- Track 42 : Spikelee\_72
- Track 43 : VRedHorse\_65
- Track 44 : Dante\_66
- Track 45 : Inventum\_61
- Track 46 : PhesterPhotato\_65
- Track 47 : Blexus\_63
- Track 48 : LittleShirley\_65
- Track 49 : Ramsey\_64, Madiba\_66
- Track 50 : Royals2015\_68
- Track 51 : NewHope4\_67
- Track 52 : Rita\_66
- Track 53 : Grimmer\_75
- Track 54 : Cabrinians\_66, NormanBulbieJr\_65, Koella\_59, Priscilla\_65
- Track 55 : Pollywog\_66
- Track 56 : Job42\_68
- Track 57 : Tweety\_65
- Track 58 : LunaBlu\_67, Galactic\_64
- Track 59 : Medindi\_61
- Track 60 : Veteran\_62
- Track 61 : Ogopogo\_71, ThetaBob\_73
- Track 62 : OwlsT2W\_65
- Track 63 : GigiOuiOui\_61
- Track 64 : Firehouse51\_68
- Track 65 : Krakatau\_62
- Track 66 : SilverChicken\_75, Cornucopia\_67
- Track 67 : Yoshi\_81
- Track 68 : Jabbawokkie\_80, Blarby\_78, Mantra\_62, Zapner\_79
- Track 69 : Squirty\_67
- Track 70 : LunaStella\_65, TChen\_67
- Track 71 : Renaud18\_75

- Track 72 : Cornie\_63, CheesePuff\_74, Bipolar\_65
- Track 73 : DelaGarza\_58
- Track 74 : Sweetums\_60
- Track 75 : Wrackline\_71
- Track 76 : Lesiram\_59
- Track 77 : Teng\_62
- Track 78 : Gingerbug\_57
- Track 79 : ValentiniPuff\_101
- Track 80 : JrWilcox\_102
- Track 81 : Megabear\_52, GodPhather\_53, Jeon\_52, Cepens\_52, D12\_51, PR\_52, Argie\_53, Taptic\_52
- Track 82 : Gilgamesh\_151
- Track 83 : Tonitrus\_70
- Track 84 : DillyDally\_46
- Track 85 : MooMoo\_66

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

The start number called the most often in the published annotations is 26, it was called in 199 of the 236 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Alexphander\_69, AlpineSix\_71, ArcusAngelus\_67, Ardmore\_57, Aubs\_65, Avani\_73, Batiatus\_63, Beakin\_66, BigPhil\_62, Bipolar\_65, Blexus\_63, BlueCrab\_66, BobaPhett\_69, Bobi\_69, BodEinwohner17\_66, Boomer\_70, Brocalys\_60, Brookers\_63, Brushbloom\_67, Burwell21\_63, BuzzLyseyear\_71, ByChance\_58, Byougenkin\_65, Cabrinians\_66, CaptainTrips\_63, Cerasum\_62, Che8\_70, Che9d\_75, CheesePuff\_74, Chevrolet\_70, Chuckly\_68, Clifton\_60, Coco12\_65, Cornie\_63, Cornucopia\_67, Crumble\_60, DLane\_60, DRBy19\_69, DaddyRickover\_65, Daenerys\_60, Dante\_66, Deb65\_60, DirtMcgirt\_64, Donkeykong\_68, Doomslug\_74, Dorothy\_64, DotProduct\_60, Doug\_67, Drago\_62, EleanorGeorge\_67, Emmaloid\_67, Empress\_64, Enby\_66, Eradicator\_58, Filuzino\_63, Firehouse51\_68, Flathead\_66, Florinda\_76, FreddyB\_66, GUmble\_63, Galactic\_64, Gandolph\_68, Geralt\_60, GigiOuiOui\_61, Girfales\_73, Girr\_63, Gorge\_69, Grimmer\_75, Guppsters\_66, Hades\_66, Hamulus\_65, Harley\_67, Hegedechwinu\_65, Hlubikazi\_61, IbOuu\_65, Ibhubes\_i\_65, IrishSherpFalk\_66, JalFarm20\_78, James\_69, Jant\_69, Jinglebell\_71, Job42\_68, JoeyJr\_61, JrWilcox\_102, Juice456\_66, Juniper1\_65, Kenuha5\_63, Kersh\_67, Kimberlium\_70, KingMidas\_65, Kingsley\_63, Koella\_59, Krakatau\_62, KristaRAM\_68, LastJedi\_59, Leozinho\_64, Leperchaun\_58, LilMoolah\_64, LittleShirley\_65, Lizziana\_71, Llama\_70, Llij\_61, Lorde\_65, LunaBlu\_67, LunaStella\_65, MadMen\_65, Madiba\_66, Mahavrat\_62, Mandlovu\_61, Maravista\_67, Marker\_67, Martik\_65, Mattes\_69, Medindi\_61, Melissauren88\_63, MilleniumForce\_68, MinionDave\_64, Minnie\_68, MisterCuddles\_63, Modragons\_69, Mova\_69, Ms6\_62, MulchExplorer\_69, NewHope4\_67, Nimbo\_59, Nitzel\_62, Nivrat\_62, NormanBulbieJr\_65, Ochi17\_69, OfUltron\_71, Ogopogo\_71, OldBen\_63, OlympiaSaint\_67, Ovechkin\_65, OwlsT2W\_65, PHappiness\_61, PMC\_62, Pacc40\_59, Phalconet\_63, Phanphagia\_61, Phatniss\_63, PhesterPotato\_65, Philus\_69, PhilipPhlop\_65, Pippy\_64, Plumbus\_68, Polka14\_64, Pollywog\_66, PopTart\_59, Priscilla\_65, QuickMath\_69, Quico\_73, Radiance\_64, Ramsey\_64, RedBird\_64, Renaud18\_75,

Rialto\_70, RitaG\_61, Rita\_66, Rockne\_66, RockyHorror\_66, Royals2015\_68, Ruby\_61, SG4\_62, Saal\_67, Sandalphon\_66, Sarma624\_64, Sassafras\_64, SassyB\_59, Scottish\_64, Seabastian\_71, Seagreen\_64, Shauna1\_63, ShiLan\_64, ShowerHandel\_68, SiSi\_63, SilverChicken\_75, Slim\_67, Soul22\_71, Spartacus\_67, Spikelee\_72, Spoonbill\_63, Squirty\_67, StAnnes\_63, Stap\_63, Starceвич\_65, Strokeseat\_61, SuperGrey\_69, SwagPiggett\_70, TChen\_67, TDanisky\_72, Tchotchke\_64, ThetaBob\_73, Topiatin\_72, Totinger\_65, Tweety\_65, UncleRicky\_64, VRedHorse\_65, ValentiniPuff\_101, Velveteen\_61, Veteran\_62, Violac\_66, Vivum\_66, Whatsapiecost\_65, WillSterrel\_66, XFactor\_63, Yoshi\_81, Zerg\_65, Zizzle\_69,

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

- Enzomatic\_73, Inventum\_61, Polo2Bam\_72, SeaLumen\_70,

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

- Argie\_53, Banquo\_50, Blarby\_78, Cepens\_52, D12\_51, Dardanus\_46, DeadP\_72, DelaGarza\_58, DillyDally\_46, DinoDaryn\_52, Fastidio\_66, Gilgamesh\_151, Gingerbug\_57, GodPhather\_53, Goib\_52, Huff\_52, Jabbawokkie\_80, Jeon\_52, Leozinho\_66, Lesiram\_59, MadMen\_67, Mantra\_62, Megabear\_52, MooMoo\_66, PR\_52, Schmidt\_45, Splinter\_51, Sweetums\_60, TZGordon\_53, Taj\_70, Taptic\_52, Teng\_62, TinaLin\_50, Tonitrus\_70, Vendetta\_51, Wee\_70, Wrackline\_71, Zapner\_79,

### Summary by start number:

Start 14:

- Found in 4 of 251 ( 1.6% ) of genes in pham
- No Manual Annotations of this start.
- Called 75.0% of time when present
- Phage (with cluster) where this start called: Enzomatic\_73 (F1), Polo2Bam\_72 (F1), SeaLumen\_70 (F1),

Start 24:

- Found in 8 of 251 ( 3.2% ) of genes in pham
- Manual Annotations of this start: 7 of 236
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Blarby\_78 (F), DeadP\_72 (F1), Fastidio\_66 (F1), Jabbawokkie\_80 (F2), Mantra\_62 (F1), Taj\_70 (F1), Wee\_70 (F1), Zapner\_79 (F2),

Start 25:

- Found in 1 of 251 ( 0.4% ) of genes in pham
- Manual Annotations of this start: 1 of 236
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DillyDally\_46 (singleton),

Start 26:

- Found in 213 of 251 ( 84.9% ) of genes in pham
- Manual Annotations of this start: 199 of 236
- Called 98.1% of time when present
- Phage (with cluster) where this start called: Alexphander\_69 (F1), AlpineSix\_71 (F1), ArcusAngelus\_67 (F1), Ardmore\_57 (F1), Aubs\_65 (F1), Avani\_73 (F2), Batiatus\_63 (F1), Beakin\_66 (F1), BigPhil\_62 (F1), Bipolar\_65 (F1), Blexus\_63 (F1), BlueCrab\_66 (F1), BobaPhett\_69 (F1), Bobi\_69 (F1), BodEinwohner17\_66 (F1), Boomer\_70 (F1),

Brocalys\_60 (F1), Brookers\_63 (F1), Brushbloom\_67 (F1), Burwell21\_63 (F1),  
 BuzzLyseyear\_71 (F1), ByChance\_58 (F1), Byougenkin\_65 (F1), Cabrinians\_66 (F1),  
 CaptainTrips\_63 (F1), Cerasum\_62 (F1), Che8\_70 (F1), Che9d\_75 (F2),  
 Cheesepuff\_74 (F1), Chevrolet\_70 (F1), Chuckly\_68 (F1), Clifton\_60 (F1),  
 Coco12\_65 (F1), Cornie\_63 (F5), Cornucopia\_67 (F1), Crumble\_60 (F1), DLane\_60  
 (F1), DRBy19\_69 (F1), DaddyRickover\_65 (F1), Daenerys\_60 (F1), Dante\_66 (F1),  
 Deb65\_60 (F1), DirtMcgirt\_64 (F1), Donkeykong\_68 (F1), Doomslug\_74 (F),  
 Dorothy\_64 (F1), DotProduct\_60 (F1), Doug\_67 (F1), Drago\_62 (F1),  
 EleanorGeorge\_67 (F1), Emmaloid\_67 (F1), Empress\_64 (F1), Enby\_66 (F1),  
 Eradicator\_58 (F1), Filuzino\_63 (F1), Firehouse51\_68 (F1), Flathead\_66 (F1),  
 Florinda\_76 (F1), FreddyB\_66 (F1), GUmbie\_63 (F1), Galactic\_64 (F1), Gandalph\_68  
 (F1), Geralt\_60 (F1), GigiOuiOui\_61 (F1), Girafales\_73 (F1), Girr\_63 (F1), Gorge\_69  
 (F1), Grimmer\_75 (F1), Guppsters\_66 (F1), Hades\_66 (F1), Hamulus\_65 (F1),  
 Harley\_67 (F1), Hegedechwinu\_65 (F1), Hlubikazi\_61 (F1), IbOuu\_65 (F1),  
 Ibhubes\_i\_65 (F1), IrishSherpFalk\_66 (F1), JalFarm20\_78 (F1), James\_69 (F1),  
 Jant\_69 (F1), Jinglebell\_71 (F1), Job42\_68 (F1), JoeyJr\_61 (F1), JrWilcox\_102 (GL),  
 Juice456\_66 (F1), Juniper1\_65 (F1), Kenuha5\_63 (F1), Kersh\_67 (F1),  
 Kimberlium\_70 (F1), KingMidas\_65 (F1), Kingsley\_63 (F1), Koella\_59 (F1),  
 Krakatau\_62 (F1), KristaRAM\_68 (F1), LastJedi\_59 (F1), Leozinho\_64 (F1),  
 Leperchaun\_58 (F1), LilMoolah\_64 (F1), LittleShirley\_65 (F1), Lizziana\_71 (F1),  
 Llama\_70 (F1), Llij\_61 (F1), Lorde\_65 (F1), LunaBlu\_67 (F1), LunaStella\_65 (F4),  
 MadMen\_65 (F1), Madiba\_66 (F1), Mahavrat\_62 (F1), Mandlovu\_61 (F1),  
 Maravista\_67 (F1), Marker\_67 (F1), Martik\_65 (F1), Mattes\_69 (F1), Medindi\_61 (F1),  
 Melissauren88\_63 (F1), MilleniumForce\_68 (F1), MinionDave\_64 (F1), Minnie\_68  
 (F1), MisterCuddles\_63 (F1), Modragons\_69 (F1), Mova\_69 (F1), Ms6\_62 (F1),  
 MulchExplorer\_69 (F1), NewHope4\_67 (F1), Nimbo\_59 (F1), Nitzel\_62 (F1),  
 Nivrat\_62 (F1), NormanBulbieJr\_65 (F1), Ochi17\_69 (F1), OfUltron\_71 (F1),  
 Ogopogo\_71 (F1), OldBen\_63 (F1), OlympiaSaint\_67 (F1), Ovechkin\_65 (F1),  
 OwlsT2W\_65 (F1), PHappiness\_61 (F1), PMC\_62 (F1), Pacc40\_59 (F1),  
 Phalconet\_63 (F1), Phanphagia\_61 (F1), Phatniss\_63 (F1), PhesterPhotato\_65 (F1),  
 Philus\_69 (F1), PhilipPhlop\_65 (F1), Pippy\_64 (F1), Plumbus\_68 (F1), Polka14\_64  
 (F1), Pollywog\_66 (F1), PopTart\_59 (F1), Priscilla\_65 (F1), QuickMath\_69 (F1),  
 Quico\_73 (F1), Radiance\_64 (F1), Ramsey\_64 (F1), RedBird\_64 (F1), Renaud18\_75  
 (F4), Rialto\_70 (F1), RitaG\_61 (F1), Rita\_66 (F1), Rockne\_66 (F1), RockyHorror\_66  
 (F1), Royals2015\_68 (F1), Ruby\_61 (F1), SG4\_62 (F1), Saal\_67 (F1),  
 Sandalphon\_66 (F1), Sarma624\_64 (F1), Sassafras\_64 (F1), SassyB\_59 (F1),  
 Scottish\_64 (F1), Seabastian\_71 (F1), Seagreen\_64 (F1), Shauna1\_63 (F1),  
 ShiLan\_64 (F1), ShowerHandel\_68 (F1), SiSi\_63 (F1), SilverChicken\_75 (F2),  
 Slim\_67 (F1), Soul22\_71 (F2), Spartacus\_67 (F1), Spikelee\_72 (F1), Spoonbill\_63  
 (F1), Squirty\_67 (F3), StAnnes\_63 (F1), Stap\_63 (F1), Starcevich\_65 (F1),  
 Strokeseat\_61 (F1), SuperGrey\_69 (F1), SwagPigglett\_70 (F1), TChen\_67 (F4),  
 TDanisky\_72 (F1), Tchotchke\_64 (F1), ThetaBob\_73 (F4), Topiatin\_72 (F1),  
 Totinger\_65 (F1), Tweety\_65 (F1), UncleRicky\_64 (F1), VRedHorse\_65 (F1),  
 ValentiniPuff\_101 (GL), Velveteen\_61 (F1), Veteran\_62 (F1), Violac\_66 (F1),  
 Vivum\_66 (F1), Whatsapiecost\_65 (F1), WillSterrel\_66 (F1), XFactor\_63 (F1),  
 Yoshi\_81 (F2), Zerg\_65 (F1), Zizzle\_69 (F1),

Start 27:

- Found in 1 of 251 ( 0.4% ) of genes in pham
- Manual Annotations of this start: 1 of 236
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Dardanus\_46 (CU3),

#### Start 28:

- Found in 8 of 251 ( 3.2% ) of genes in pham
- Manual Annotations of this start: 7 of 236
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DelaGarza\_58 (GF), Gilgamesh\_151 (singleton), Gingerbug\_57 (GF), Lesiram\_59 (GF), Sweetums\_60 (GF), Teng\_62 (GF), Tonitrus\_70 (singleton), Wrackline\_71 (GF),

#### Start 29:

- Found in 9 of 251 ( 3.6% ) of genes in pham
- Manual Annotations of this start: 9 of 236
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Banquo\_50 (CU1), DinoDaryn\_52 (CU1), Goib\_52 (CU1), Huffy\_52 (CU1), Schmidt\_45 (CU4), Splinter\_51 (CU1), TZGordon\_53 (CU1), TinaLin\_50 (CU1), Vendetta\_51 (CU1),

#### Start 30:

- Found in 3 of 251 ( 1.2% ) of genes in pham
- Manual Annotations of this start: 3 of 236
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Leozinho\_66 (F1), MadMen\_67 (F1), MooMoo\_66 (singleton),

#### Start 31:

- Found in 8 of 251 ( 3.2% ) of genes in pham
- Manual Annotations of this start: 8 of 236
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Argie\_53 (W), Cepens\_52 (W), D12\_51 (W), GodPhather\_53 (W), Jeon\_52 (W), Megabear\_52 (W), PR\_52 (W), Taptic\_52 (W),

#### Start 33:

- Found in 31 of 251 ( 12.4% ) of genes in pham
- Manual Annotations of this start: 1 of 236
- Called 3.2% of time when present
- Phage (with cluster) where this start called: Inventum\_61 (F1),

### **Summary by clusters:**

There are 13 clusters represented in this pham: F1, singleton, F3, CU3, F5, CU1, F, F2, GF, CU4, W, F4, GL,

Info for manual annotations of cluster CU1:

- Start number 29 was manually annotated 8 times for cluster CU1.

Info for manual annotations of cluster CU3:

- Start number 27 was manually annotated 1 time for cluster CU3.

Info for manual annotations of cluster CU4:

- Start number 29 was manually annotated 1 time for cluster CU4.

Info for manual annotations of cluster F1:

- Start number 24 was manually annotated 5 times for cluster F1.
- Start number 26 was manually annotated 188 times for cluster F1.
- Start number 30 was manually annotated 2 times for cluster F1.
- Start number 33 was manually annotated 1 time for cluster F1.

Info for manual annotations of cluster F2:

- Start number 24 was manually annotated 2 times for cluster F2.
- Start number 26 was manually annotated 4 times for cluster F2.

Info for manual annotations of cluster F3:

- Start number 26 was manually annotated 1 time for cluster F3.

Info for manual annotations of cluster F4:

- Start number 26 was manually annotated 4 times for cluster F4.

Info for manual annotations of cluster F5:

- Start number 26 was manually annotated 1 time for cluster F5.

Info for manual annotations of cluster GF:

- Start number 28 was manually annotated 5 times for cluster GF.

Info for manual annotations of cluster GL:

- Start number 26 was manually annotated 1 time for cluster GL.

Info for manual annotations of cluster W:

- Start number 31 was manually annotated 8 times for cluster W.

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

Gene: Alexphander\_69 Start: 42282, Stop: 42644, Start Num: 26

Candidate Starts for Alexphander\_69:

(Start: 26 @42282 has 199 MA's), (72, 42582), (83, 42627),

Gene: AlpineSix\_71 Start: 45319, Stop: 45681, Start Num: 26

Candidate Starts for AlpineSix\_71:

(Start: 26 @45319 has 199 MA's), (60, 45523), (72, 45619), (83, 45664),

Gene: ArcusAngelus\_67 Start: 42632, Stop: 42994, Start Num: 26

Candidate Starts for ArcusAngelus\_67:

(Start: 26 @42632 has 199 MA's), (48, 42791), (72, 42932), (73, 42935), (83, 42977),

Gene: Ardmore\_57 Start: 40049, Stop: 40405, Start Num: 26

Candidate Starts for Ardmore\_57:

(Start: 26 @40049 has 199 MA's), (72, 40349), (73, 40352),

Gene: Argie\_53 Start: 44207, Stop: 44548, Start Num: 31

Candidate Starts for Argie\_53:

(Start: 31 @44207 has 8 MA's), (38, 44261), (40, 44276), (41, 44294), (49, 44360), (54, 44378), (62, 44432), (69, 44477), (72, 44498), (76, 44522), (77, 44525),

Gene: Aubs\_65 Start: 42690, Stop: 43052, Start Num: 26

Candidate Starts for Aubs\_65:

(8, 42573), (Start: 26 @42690 has 199 MA's), (48, 42849), (72, 42990), (83, 43035),

Gene: Avani\_73 Start: 42666, Stop: 43022, Start Num: 26

Candidate Starts for Avani\_73:

(Start: 26 @42666 has 199 MA's), (72, 42966), (73, 42969),

Gene: Banquo\_50 Start: 32516, Stop: 32896, Start Num: 29

Candidate Starts for Banquo\_50:

(Start: 29 @32516 has 9 MA's), (39, 32579), (45, 32639), (64, 32756), (69, 32795), (74, 32822), (84, 32864),

Gene: Batiatus\_63 Start: 41925, Stop: 42281, Start Num: 26

Candidate Starts for Batiatus\_63:

(Start: 26 @41925 has 199 MA's), (72, 42225), (73, 42228),

Gene: Beakin\_66 Start: 41229, Stop: 41591, Start Num: 26

Candidate Starts for Beakin\_66:

(Start: 26 @41229 has 199 MA's), (48, 41388), (72, 41529), (73, 41532), (83, 41574),

Gene: BigPhil\_62 Start: 39148, Stop: 39510, Start Num: 26

Candidate Starts for BigPhil\_62:

(Start: 26 @39148 has 199 MA's), (48, 39307), (60, 39352), (72, 39448), (73, 39451), (83, 39493),

Gene: Bipolar\_65 Start: 42690, Stop: 43052, Start Num: 26

Candidate Starts for Bipolar\_65:

(Start: 26 @42690 has 199 MA's), (48, 42849), (72, 42990), (83, 43035),

Gene: Blarby\_78 Start: 44162, Stop: 44503, Start Num: 24

Candidate Starts for Blarby\_78:

(21, 44147), (Start: 24 @44162 has 7 MA's), (72, 44462), (73, 44465),

Gene: Blexus\_63 Start: 42819, Stop: 43181, Start Num: 26

Candidate Starts for Blexus\_63:

(Start: 26 @42819 has 199 MA's), (48, 42978), (72, 43119), (83, 43164),

Gene: BlueCrab\_66 Start: 43528, Stop: 43884, Start Num: 26

Candidate Starts for BlueCrab\_66:

(Start: 26 @43528 has 199 MA's), (52, 43702), (72, 43828),

Gene: BobaPhett\_69 Start: 45114, Stop: 45476, Start Num: 26

Candidate Starts for BobaPhett\_69:

(Start: 26 @45114 has 199 MA's), (48, 45273), (52, 45288), (72, 45414), (83, 45459),

Gene: Bobi\_69 Start: 43528, Stop: 43884, Start Num: 26

Candidate Starts for Bobi\_69:

(Start: 26 @43528 has 199 MA's), (72, 43828), (73, 43831),

Gene: BodEinwohner17\_66 Start: 42524, Stop: 42886, Start Num: 26

Candidate Starts for BodEinwohner17\_66:

(10, 42419), (12, 42425), (18, 42479), (Start: 26 @42524 has 199 MA's), (Start: 33 @42557 has 1 MA's), (72, 42824), (73, 42827), (83, 42869),

Gene: Boomer\_70 Start: 44186, Stop: 44542, Start Num: 26

Candidate Starts for Boomer\_70:

(Start: 26 @44186 has 199 MA's), (72, 44486), (73, 44489),

Gene: Brocalys\_60 Start: 39296, Stop: 39658, Start Num: 26

Candidate Starts for Brocalys\_60:

(8, 39179), (Start: 26 @39296 has 199 MA's), (48, 39455), (72, 39596), (83, 39641),

Gene: Brookers\_63 Start: 42099, Stop: 42461, Start Num: 26

Candidate Starts for Brookers\_63:

(Start: 26 @42099 has 199 MA's), (48, 42258), (60, 42303), (72, 42399), (73, 42402), (83, 42444),

Gene: Brushbloom\_67 Start: 42857, Stop: 43213, Start Num: 26

Candidate Starts for Brushbloom\_67:

(Start: 26 @42857 has 199 MA's), (72, 43157), (73, 43160),

Gene: Burwell21\_63 Start: 42397, Stop: 42759, Start Num: 26

Candidate Starts for Burwell21\_63:

(8, 42280), (Start: 26 @42397 has 199 MA's), (48, 42556), (72, 42697), (83, 42742),

Gene: BuzzLyseyear\_71 Start: 43599, Stop: 43961, Start Num: 26

Candidate Starts for BuzzLyseyear\_71:

(Start: 26 @43599 has 199 MA's), (48, 43758), (72, 43899), (73, 43902), (83, 43944),

Gene: ByChance\_58 Start: 38456, Stop: 38818, Start Num: 26

Candidate Starts for ByChance\_58:

(Start: 26 @38456 has 199 MA's), (48, 38615), (52, 38630), (72, 38756), (83, 38801),

Gene: Byougenkin\_65 Start: 42188, Stop: 42544, Start Num: 26

Candidate Starts for Byougenkin\_65:

(Start: 26 @42188 has 199 MA's), (72, 42488), (73, 42491),

Gene: Cabrinians\_66 Start: 42475, Stop: 42837, Start Num: 26

Candidate Starts for Cabrinians\_66:

(Start: 26 @42475 has 199 MA's), (52, 42649), (72, 42775), (83, 42820),

Gene: CaptainTrips\_63 Start: 42210, Stop: 42572, Start Num: 26

Candidate Starts for CaptainTrips\_63:

(8, 42093), (Start: 26 @42210 has 199 MA's), (48, 42369), (72, 42510), (83, 42555),

Gene: Cepens\_52 Start: 43922, Stop: 44263, Start Num: 31

Candidate Starts for Cepens\_52:

(Start: 31 @43922 has 8 MA's), (38, 43976), (40, 43991), (41, 44009), (49, 44075), (54, 44093), (62, 44147), (69, 44192), (72, 44213), (76, 44237), (77, 44240),

Gene: Cerasum\_62 Start: 39166, Stop: 39528, Start Num: 26

Candidate Starts for Cerasum\_62:

(Start: 26 @39166 has 199 MA's), (48, 39325), (60, 39370), (72, 39466), (73, 39469), (83, 39511),

Gene: Che8\_70 Start: 45095, Stop: 45457, Start Num: 26

Candidate Starts for Che8\_70:

(Start: 26 @45095 has 199 MA's), (48, 45254), (72, 45395), (73, 45398), (83, 45440),

Gene: Che9d\_75 Start: 42864, Stop: 43220, Start Num: 26  
Candidate Starts for Che9d\_75:  
(Start: 26 @42864 has 199 MA's), (48, 43023), (72, 43164), (73, 43167),

Gene: Cheesepuff\_74 Start: 44480, Stop: 44842, Start Num: 26  
Candidate Starts for Cheesepuff\_74:  
(Start: 26 @44480 has 199 MA's), (48, 44639), (72, 44780), (83, 44825),

Gene: Chevrolet\_70 Start: 42633, Stop: 42995, Start Num: 26  
Candidate Starts for Chevrolet\_70:  
(Start: 26 @42633 has 199 MA's), (72, 42933), (73, 42936), (83, 42978),

Gene: Chuckly\_68 Start: 42655, Stop: 43011, Start Num: 26  
Candidate Starts for Chuckly\_68:  
(Start: 26 @42655 has 199 MA's), (72, 42955), (73, 42958),

Gene: Clifton\_60 Start: 39647, Stop: 40009, Start Num: 26  
Candidate Starts for Clifton\_60:  
(8, 39530), (Start: 26 @39647 has 199 MA's), (48, 39806), (72, 39947), (83, 39992),

Gene: Coco12\_65 Start: 43223, Stop: 43585, Start Num: 26  
Candidate Starts for Coco12\_65:  
(Start: 26 @43223 has 199 MA's), (48, 43382), (60, 43427), (72, 43523), (73, 43526), (83, 43568),

Gene: Cornie\_63 Start: 40942, Stop: 41304, Start Num: 26  
Candidate Starts for Cornie\_63:  
(Start: 26 @40942 has 199 MA's), (48, 41101), (72, 41242), (83, 41287),

Gene: Cornucopia\_67 Start: 42579, Stop: 42941, Start Num: 26  
Candidate Starts for Cornucopia\_67:  
(Start: 26 @42579 has 199 MA's), (60, 42783), (72, 42879), (73, 42882), (83, 42924),

Gene: Crumble\_60 Start: 38411, Stop: 38773, Start Num: 26  
Candidate Starts for Crumble\_60:  
(Start: 26 @38411 has 199 MA's), (48, 38570), (52, 38585), (72, 38711), (83, 38756),

Gene: D12\_51 Start: 44470, Stop: 44811, Start Num: 31  
Candidate Starts for D12\_51:  
(Start: 31 @44470 has 8 MA's), (38, 44524), (40, 44539), (41, 44557), (49, 44623), (54, 44641), (62, 44695), (69, 44740), (72, 44761), (76, 44785), (77, 44788),

Gene: DLane\_60 Start: 40555, Stop: 40917, Start Num: 26  
Candidate Starts for DLane\_60:  
(Start: 26 @40555 has 199 MA's), (72, 40855), (73, 40858), (83, 40900),

Gene: DRBy19\_69 Start: 43907, Stop: 44263, Start Num: 26  
Candidate Starts for DRBy19\_69:  
(8, 43790), (Start: 26 @43907 has 199 MA's), (52, 44081), (72, 44207), (73, 44210), (83, 44246),

Gene: DaddyRickover\_65 Start: 43087, Stop: 43449, Start Num: 26  
Candidate Starts for DaddyRickover\_65:  
(10, 42982), (12, 42988), (18, 43042), (Start: 26 @43087 has 199 MA's), (Start: 33 @43120 has 1 MA's), (60, 43291), (72, 43387), (73, 43390), (83, 43432),

Gene: Daenerys\_60 Start: 41329, Stop: 41685, Start Num: 26

Candidate Starts for Daenerys\_60:

(10, 41224), (12, 41230), (18, 41284), (Start: 26 @41329 has 199 MA's), (Start: 33 @41362 has 1 MA's), (60, 41533), (72, 41629), (73, 41632),

Gene: Dante\_66 Start: 41796, Stop: 42161, Start Num: 26

Candidate Starts for Dante\_66:

(Start: 26 @41796 has 199 MA's), (48, 41955), (72, 42096), (76, 42120),

Gene: Dardanus\_46 Start: 31283, Stop: 31621, Start Num: 27

Candidate Starts for Dardanus\_46:

(7, 31163), (23, 31274), (Start: 27 @31283 has 1 MA's), (45, 31409), (48, 31439), (54, 31460), (76, 31610),

Gene: DeadP\_72 Start: 44907, Stop: 45269, Start Num: 24

Candidate Starts for DeadP\_72:

(21, 44892), (Start: 24 @44907 has 7 MA's), (72, 45207), (73, 45210), (83, 45252),

Gene: Deb65\_60 Start: 41299, Stop: 41661, Start Num: 26

Candidate Starts for Deb65\_60:

(10, 41194), (12, 41200), (18, 41254), (Start: 26 @41299 has 199 MA's), (Start: 33 @41332 has 1 MA's), (72, 41599), (73, 41602), (83, 41644),

Gene: DelaGarza\_58 Start: 33298, Stop: 33687, Start Num: 28

Candidate Starts for DelaGarza\_58:

(Start: 28 @33298 has 7 MA's), (43, 33424), (61, 33532), (84, 33652),

Gene: DillyDally\_46 Start: 29839, Stop: 30222, Start Num: 25

Candidate Starts for DillyDally\_46:

(19, 29803), (Start: 25 @29839 has 1 MA's), (Start: 33 @29875 has 1 MA's), (45, 29980), (50, 30016), (56, 30034), (58, 30040), (59, 30049), (70, 30124), (78, 30184),

Gene: DinoDaryn\_52 Start: 33048, Stop: 33431, Start Num: 29

Candidate Starts for DinoDaryn\_52:

(Start: 29 @33048 has 9 MA's), (45, 33171), (74, 33354), (84, 33396),

Gene: DirtMcgirt\_64 Start: 40554, Stop: 40916, Start Num: 26

Candidate Starts for DirtMcgirt\_64:

(Start: 26 @40554 has 199 MA's), (48, 40713), (72, 40854), (73, 40857), (83, 40899),

Gene: Donkeykong\_68 Start: 44468, Stop: 44830, Start Num: 26

Candidate Starts for Donkeykong\_68:

(Start: 26 @44468 has 199 MA's), (72, 44768), (73, 44771), (83, 44813),

Gene: Doomslug\_74 Start: 42992, Stop: 43354, Start Num: 26

Candidate Starts for Doomslug\_74:

(8, 42875), (Start: 26 @42992 has 199 MA's), (48, 43151), (72, 43292), (73, 43295), (83, 43337),

Gene: Dorothy\_64 Start: 42261, Stop: 42623, Start Num: 26

Candidate Starts for Dorothy\_64:

(10, 42156), (12, 42162), (18, 42216), (Start: 26 @42261 has 199 MA's), (Start: 33 @42294 has 1 MA's), (60, 42465), (72, 42561), (73, 42564), (83, 42606),

Gene: DotProduct\_60 Start: 40802, Stop: 41164, Start Num: 26  
Candidate Starts for DotProduct\_60:  
(Start: 26 @40802 has 199 MA's), (72, 41102), (73, 41105), (83, 41147),

Gene: Doug\_67 Start: 42635, Stop: 42997, Start Num: 26  
Candidate Starts for Doug\_67:  
(Start: 26 @42635 has 199 MA's), (72, 42935), (83, 42980),

Gene: Drago\_62 Start: 40557, Stop: 40919, Start Num: 26  
Candidate Starts for Drago\_62:  
(Start: 26 @40557 has 199 MA's), (48, 40716), (72, 40857), (73, 40860), (83, 40902),

Gene: EleanorGeorge\_67 Start: 43317, Stop: 43673, Start Num: 26  
Candidate Starts for EleanorGeorge\_67:  
(Start: 26 @43317 has 199 MA's), (48, 43476), (72, 43617), (73, 43620),

Gene: Emmaloid\_67 Start: 43062, Stop: 43424, Start Num: 26  
Candidate Starts for Emmaloid\_67:  
(Start: 26 @43062 has 199 MA's), (72, 43362), (73, 43365), (83, 43407),

Gene: Empress\_64 Start: 42743, Stop: 43105, Start Num: 26  
Candidate Starts for Empress\_64:  
(10, 42638), (12, 42644), (18, 42698), (Start: 26 @42743 has 199 MA's), (Start: 33 @42776 has 1 MA's), (72, 43043), (73, 43046), (83, 43088),

Gene: Enby\_66 Start: 40833, Stop: 41195, Start Num: 26  
Candidate Starts for Enby\_66:  
(Start: 26 @40833 has 199 MA's), (48, 40992), (72, 41133), (73, 41136), (83, 41178),

Gene: Enzomatic\_73 Start: 42241, Stop: 42768, Start Num: 14  
Candidate Starts for Enzomatic\_73:  
(14, 42241), (15, 42250), (20, 42283), (Start: 26 @42319 has 199 MA's), (72, 42619),

Gene: Eradicator\_58 Start: 40449, Stop: 40811, Start Num: 26  
Candidate Starts for Eradicator\_58:  
(Start: 26 @40449 has 199 MA's), (48, 40608), (72, 40749), (73, 40752), (83, 40794),

Gene: Fastidio\_66 Start: 41072, Stop: 41428, Start Num: 24  
Candidate Starts for Fastidio\_66:  
(21, 41057), (Start: 24 @41072 has 7 MA's), (48, 41231), (72, 41372), (73, 41375),

Gene: Filuzino\_63 Start: 40860, Stop: 41222, Start Num: 26  
Candidate Starts for Filuzino\_63:  
(Start: 26 @40860 has 199 MA's), (72, 41160), (73, 41163), (83, 41205),

Gene: Firehouse51\_68 Start: 46363, Stop: 46704, Start Num: 26  
Candidate Starts for Firehouse51\_68:  
(Start: 26 @46363 has 199 MA's), (60, 46567), (72, 46663), (73, 46666),

Gene: Flathead\_66 Start: 42514, Stop: 42876, Start Num: 26  
Candidate Starts for Flathead\_66:  
(Start: 26 @42514 has 199 MA's), (72, 42814), (73, 42817), (83, 42859),

Gene: Florinda\_76 Start: 43974, Stop: 44336, Start Num: 26  
Candidate Starts for Florinda\_76:  
(Start: 26 @43974 has 199 MA's), (72, 44274), (73, 44277), (83, 44319),

Gene: FreddyB\_66 Start: 41323, Stop: 41679, Start Num: 26  
Candidate Starts for FreddyB\_66:  
(Start: 26 @41323 has 199 MA's), (52, 41497), (72, 41623),

Gene: GUmbie\_63 Start: 41676, Stop: 42038, Start Num: 26  
Candidate Starts for GUmbie\_63:  
(Start: 26 @41676 has 199 MA's), (48, 41835), (72, 41976), (73, 41979), (83, 42021),

Gene: Galactic\_64 Start: 41833, Stop: 42195, Start Num: 26  
Candidate Starts for Galactic\_64:  
(Start: 26 @41833 has 199 MA's), (48, 41992), (72, 42133), (83, 42178),

Gene: Gandalph\_68 Start: 42720, Stop: 43082, Start Num: 26  
Candidate Starts for Gandalph\_68:  
(8, 42603), (Start: 26 @42720 has 199 MA's), (48, 42879), (72, 43020), (73, 43023), (83, 43065),

Gene: Geralt\_60 Start: 41298, Stop: 41660, Start Num: 26  
Candidate Starts for Geralt\_60:  
(10, 41193), (12, 41199), (18, 41253), (Start: 26 @41298 has 199 MA's), (Start: 33 @41331 has 1 MA's), (72, 41598), (73, 41601), (83, 41643),

Gene: GigiOuiOui\_61 Start: 40822, Stop: 41184, Start Num: 26  
Candidate Starts for GigiOuiOui\_61:  
(Start: 26 @40822 has 199 MA's), (72, 41122), (73, 41125), (83, 41167),

Gene: Gilgamesh\_151 Start: 125936, Stop: 126292, Start Num: 28  
Candidate Starts for Gilgamesh\_151:  
(17, 125873), (Start: 28 @125936 has 7 MA's), (Start: 33 @125972 has 1 MA's), (42, 126053), (43, 126065), (51, 126116), (63, 126182), (73, 126242), (75, 126260), (79, 126275),

Gene: Gingerbug\_57 Start: 33770, Stop: 34138, Start Num: 28  
Candidate Starts for Gingerbug\_57:  
(Start: 28 @33770 has 7 MA's), (36, 33791), (43, 33872), (61, 33980),

Gene: Girafales\_73 Start: 43765, Stop: 44127, Start Num: 26  
Candidate Starts for Girafales\_73:  
(Start: 26 @43765 has 199 MA's), (72, 44065), (73, 44068), (83, 44110),

Gene: Girr\_63 Start: 41692, Stop: 42054, Start Num: 26  
Candidate Starts for Girr\_63:  
(Start: 26 @41692 has 199 MA's), (72, 41992), (83, 42037),

Gene: GodPhather\_53 Start: 44710, Stop: 45051, Start Num: 31  
Candidate Starts for GodPhather\_53:  
(Start: 31 @44710 has 8 MA's), (38, 44764), (40, 44779), (41, 44797), (49, 44863), (54, 44881), (62, 44935), (69, 44980), (72, 45001), (76, 45025), (77, 45028),

Gene: Goib\_52 Start: 33585, Stop: 33968, Start Num: 29

Candidate Starts for Goib\_52:

(Start: 29 @33585 has 9 MA's), (45, 33708), (74, 33891), (84, 33933),

Gene: Gorge\_69 Start: 43618, Stop: 43980, Start Num: 26

Candidate Starts for Gorge\_69:

(Start: 26 @43618 has 199 MA's), (48, 43777), (72, 43918), (73, 43921), (83, 43963),

Gene: Grimmer\_75 Start: 43862, Stop: 44218, Start Num: 26

Candidate Starts for Grimmer\_75:

(Start: 26 @43862 has 199 MA's), (72, 44162),

Gene: Guppsters\_66 Start: 41977, Stop: 42339, Start Num: 26

Candidate Starts for Guppsters\_66:

(Start: 26 @41977 has 199 MA's), (48, 42136), (72, 42277), (73, 42280), (83, 42322),

Gene: Hades\_66 Start: 42692, Stop: 43054, Start Num: 26

Candidate Starts for Hades\_66:

(Start: 26 @42692 has 199 MA's), (48, 42851), (72, 42992), (73, 42995), (83, 43037),

Gene: Hamulus\_65 Start: 42334, Stop: 42690, Start Num: 26

Candidate Starts for Hamulus\_65:

(Start: 26 @42334 has 199 MA's), (72, 42634), (73, 42637),

Gene: Harley\_67 Start: 42941, Stop: 43297, Start Num: 26

Candidate Starts for Harley\_67:

(Start: 26 @42941 has 199 MA's), (48, 43100), (52, 43115), (72, 43241), (73, 43244),

Gene: Hegedechwinu\_65 Start: 41510, Stop: 41872, Start Num: 26

Candidate Starts for Hegedechwinu\_65:

(8, 41393), (Start: 26 @41510 has 199 MA's), (48, 41669), (72, 41810), (73, 41813), (83, 41855),

Gene: Hlubikazi\_61 Start: 39912, Stop: 40274, Start Num: 26

Candidate Starts for Hlubikazi\_61:

(Start: 26 @39912 has 199 MA's), (72, 40212), (73, 40215), (83, 40257),

Gene: Huffy\_52 Start: 33048, Stop: 33431, Start Num: 29

Candidate Starts for Huffy\_52:

(Start: 29 @33048 has 9 MA's), (45, 33171), (74, 33354), (84, 33396),

Gene: lbOuu\_65 Start: 43348, Stop: 43710, Start Num: 26

Candidate Starts for lbOuu\_65:

(10, 43243), (12, 43249), (18, 43303), (Start: 26 @43348 has 199 MA's), (Start: 33 @43381 has 1 MA's), (72, 43648), (73, 43651), (83, 43693),

Gene: lbhubesi\_65 Start: 41957, Stop: 42313, Start Num: 26

Candidate Starts for lbhubesi\_65:

(Start: 26 @41957 has 199 MA's), (72, 42257), (73, 42260),

Gene: Inventum\_61 Start: 42492, Stop: 42821, Start Num: 33

Candidate Starts for Inventum\_61:

(10, 42354), (12, 42360), (18, 42414), (Start: 26 @42459 has 199 MA's), (Start: 33 @42492 has 1 MA's), (60, 42663), (72, 42759), (73, 42762), (83, 42804),

Gene: IrishSherpFalk\_66 Start: 43547, Stop: 43909, Start Num: 26  
Candidate Starts for IrishSherpFalk\_66:  
(Start: 26 @43547 has 199 MA's), (72, 43847), (73, 43850), (83, 43892),

Gene: Jabbawokkie\_80 Start: 44082, Stop: 44423, Start Num: 24  
Candidate Starts for Jabbawokkie\_80:  
(21, 44067), (Start: 24 @44082 has 7 MA's), (72, 44382), (73, 44385),

Gene: JalFarm20\_78 Start: 46016, Stop: 46372, Start Num: 26  
Candidate Starts for JalFarm20\_78:  
(Start: 26 @46016 has 199 MA's), (72, 46316), (73, 46319),

Gene: James\_69 Start: 43743, Stop: 44105, Start Num: 26  
Candidate Starts for James\_69:  
(Start: 26 @43743 has 199 MA's), (48, 43902), (72, 44043), (73, 44046), (83, 44088),

Gene: Jant\_69 Start: 43594, Stop: 43950, Start Num: 26  
Candidate Starts for Jant\_69:  
(Start: 26 @43594 has 199 MA's), (72, 43894), (73, 43897),

Gene: Jeon\_52 Start: 44452, Stop: 44793, Start Num: 31  
Candidate Starts for Jeon\_52:  
(Start: 31 @44452 has 8 MA's), (38, 44506), (40, 44521), (41, 44539), (49, 44605), (54, 44623), (62, 44677), (69, 44722), (72, 44743), (76, 44767), (77, 44770),

Gene: Jinglebell\_71 Start: 45318, Stop: 45680, Start Num: 26  
Candidate Starts for Jinglebell\_71:  
(Start: 26 @45318 has 199 MA's), (60, 45522), (72, 45618), (83, 45663),

Gene: Job42\_68 Start: 44715, Stop: 45080, Start Num: 26  
Candidate Starts for Job42\_68:  
(8, 44598), (Start: 26 @44715 has 199 MA's), (44, 44841), (46, 44847), (55, 44901), (57, 44904), (72, 45018), (73, 45021), (83, 45063),

Gene: JoeyJr\_61 Start: 41497, Stop: 41853, Start Num: 26  
Candidate Starts for JoeyJr\_61:  
(10, 41392), (12, 41398), (18, 41452), (Start: 26 @41497 has 199 MA's), (Start: 33 @41530 has 1 MA's), (60, 41701), (72, 41797), (73, 41800),

Gene: JrWilcox\_102 Start: 57042, Stop: 57449, Start Num: 26  
Candidate Starts for JrWilcox\_102:  
(13, 56964), (22, 57027), (Start: 26 @57042 has 199 MA's), (35, 57078), (37, 57087), (73, 57342),

Gene: Juice456\_66 Start: 43972, Stop: 44328, Start Num: 26  
Candidate Starts for Juice456\_66:  
(Start: 26 @43972 has 199 MA's), (72, 44272), (73, 44275),

Gene: Juniper1\_65 Start: 42735, Stop: 43091, Start Num: 26  
Candidate Starts for Juniper1\_65:  
(22, 42720), (Start: 26 @42735 has 199 MA's), (60, 42939), (72, 43035), (73, 43038),

Gene: Kenuha5\_63 Start: 41295, Stop: 41651, Start Num: 26  
Candidate Starts for Kenuha5\_63:

(Start: 26 @41295 has 199 MA's), (48, 41454), (72, 41595), (73, 41598), (83, 41634),

Gene: Kersh\_67 Start: 44741, Stop: 45097, Start Num: 26

Candidate Starts for Kersh\_67:

(Start: 26 @44741 has 199 MA's), (48, 44900), (72, 45041), (73, 45044),

Gene: Kimberlium\_70 Start: 44253, Stop: 44594, Start Num: 26

Candidate Starts for Kimberlium\_70:

(Start: 26 @44253 has 199 MA's), (72, 44553), (73, 44556),

Gene: KingMidas\_65 Start: 43159, Stop: 43521, Start Num: 26

Candidate Starts for KingMidas\_65:

(10, 43054), (12, 43060), (18, 43114), (Start: 26 @43159 has 199 MA's), (Start: 33 @43192 has 1 MA's), (60, 43363), (72, 43459), (73, 43462), (83, 43504),

Gene: Kingsley\_63 Start: 41956, Stop: 42318, Start Num: 26

Candidate Starts for Kingsley\_63:

(Start: 26 @41956 has 199 MA's), (48, 42115), (60, 42160), (72, 42256), (73, 42259), (83, 42301),

Gene: Koella\_59 Start: 38373, Stop: 38735, Start Num: 26

Candidate Starts for Koella\_59:

(Start: 26 @38373 has 199 MA's), (52, 38547), (72, 38673), (83, 38718),

Gene: Krakatau\_62 Start: 41145, Stop: 41507, Start Num: 26

Candidate Starts for Krakatau\_62:

(Start: 26 @41145 has 199 MA's), (72, 41445), (73, 41448), (83, 41490),

Gene: KristaRAM\_68 Start: 44341, Stop: 44697, Start Num: 26

Candidate Starts for KristaRAM\_68:

(Start: 26 @44341 has 199 MA's), (72, 44641), (73, 44644),

Gene: LastJedi\_59 Start: 39690, Stop: 40052, Start Num: 26

Candidate Starts for LastJedi\_59:

(8, 39573), (Start: 26 @39690 has 199 MA's), (48, 39849), (72, 39990), (83, 40035),

Gene: Leozinho\_66 Start: 42196, Stop: 42552, Start Num: 30

Candidate Starts for Leozinho\_66:

(Start: 30 @42196 has 3 MA's), (32, 42217), (Start: 33 @42223 has 1 MA's), (40, 42265), (53, 42367), (67, 42457), (72, 42490), (83, 42535),

Gene: Leozinho\_64 Start: 41151, Stop: 41507, Start Num: 26

Candidate Starts for Leozinho\_64:

(Start: 26 @41151 has 199 MA's), (48, 41310), (72, 41451), (73, 41454),

Gene: Leperchaun\_58 Start: 40727, Stop: 41083, Start Num: 26

Candidate Starts for Leperchaun\_58:

(10, 40622), (12, 40628), (18, 40682), (Start: 26 @40727 has 199 MA's), (Start: 33 @40760 has 1 MA's), (60, 40931), (72, 41027), (73, 41030),

Gene: Lesiram\_59 Start: 33428, Stop: 33817, Start Num: 28

Candidate Starts for Lesiram\_59:

(Start: 28 @33428 has 7 MA's), (43, 33554), (61, 33662), (84, 33782),

Gene: LilMoolah\_64 Start: 42220, Stop: 42582, Start Num: 26  
Candidate Starts for LilMoolah\_64:  
(8, 42103), (Start: 26 @42220 has 199 MA's), (48, 42379), (72, 42520), (83, 42565),

Gene: LittleShirley\_65 Start: 42793, Stop: 43149, Start Num: 26  
Candidate Starts for LittleShirley\_65:  
(Start: 26 @42793 has 199 MA's), (60, 42997), (72, 43093), (73, 43096),

Gene: Lizziana\_71 Start: 43224, Stop: 43586, Start Num: 26  
Candidate Starts for Lizziana\_71:  
(Start: 26 @43224 has 199 MA's), (48, 43383), (72, 43524), (73, 43527), (83, 43569),

Gene: Llama\_70 Start: 45173, Stop: 45535, Start Num: 26  
Candidate Starts for Llama\_70:  
(Start: 26 @45173 has 199 MA's), (60, 45377), (72, 45473), (83, 45518),

Gene: Llij\_61 Start: 40711, Stop: 41073, Start Num: 26  
Candidate Starts for Llij\_61:  
(Start: 26 @40711 has 199 MA's), (48, 40870), (72, 41011), (73, 41014), (83, 41056),

Gene: Lorde\_65 Start: 39998, Stop: 40360, Start Num: 26  
Candidate Starts for Lorde\_65:  
(Start: 26 @39998 has 199 MA's), (48, 40157), (72, 40298), (73, 40301), (83, 40343),

Gene: LunaBlu\_67 Start: 42492, Stop: 42854, Start Num: 26  
Candidate Starts for LunaBlu\_67:  
(Start: 26 @42492 has 199 MA's), (48, 42651), (72, 42792), (83, 42837),

Gene: LunaStella\_65 Start: 42568, Stop: 42930, Start Num: 26  
Candidate Starts for LunaStella\_65:  
(Start: 26 @42568 has 199 MA's), (72, 42868), (73, 42871), (83, 42913),

Gene: MadMen\_65 Start: 42619, Stop: 42975, Start Num: 26  
Candidate Starts for MadMen\_65:  
(8, 42502), (Start: 26 @42619 has 199 MA's), (48, 42778), (72, 42919), (73, 42922),

Gene: MadMen\_67 Start: 43664, Stop: 44020, Start Num: 30  
Candidate Starts for MadMen\_67:  
(Start: 30 @43664 has 3 MA's), (32, 43685), (Start: 33 @43691 has 1 MA's), (40, 43733), (53, 43835),  
(67, 43925), (72, 43958), (83, 44003),

Gene: Madiba\_66 Start: 41725, Stop: 42087, Start Num: 26  
Candidate Starts for Madiba\_66:  
(Start: 26 @41725 has 199 MA's), (48, 41884), (72, 42025), (83, 42070),

Gene: Mahavrat\_62 Start: 41431, Stop: 41787, Start Num: 26  
Candidate Starts for Mahavrat\_62:  
(Start: 26 @41431 has 199 MA's), (72, 41731),

Gene: Mandlovu\_61 Start: 39854, Stop: 40216, Start Num: 26  
Candidate Starts for Mandlovu\_61:  
(Start: 26 @39854 has 199 MA's), (72, 40154), (73, 40157), (83, 40199),

Gene: Mantra\_62 Start: 41207, Stop: 41563, Start Num: 24  
Candidate Starts for Mantra\_62:  
(21, 41192), (Start: 24 @41207 has 7 MA's), (72, 41507), (73, 41510),

Gene: Maravista\_67 Start: 44362, Stop: 44724, Start Num: 26  
Candidate Starts for Maravista\_67:  
(Start: 26 @44362 has 199 MA's), (48, 44521), (52, 44536), (72, 44662), (83, 44707),

Gene: Marker\_67 Start: 42458, Stop: 42814, Start Num: 26  
Candidate Starts for Marker\_67:  
(8, 42341), (Start: 26 @42458 has 199 MA's), (72, 42758), (73, 42761), (81, 42797),

Gene: Martik\_65 Start: 42396, Stop: 42752, Start Num: 26  
Candidate Starts for Martik\_65:  
(8, 42279), (Start: 26 @42396 has 199 MA's), (48, 42555), (72, 42696), (73, 42699),

Gene: Mattes\_69 Start: 43743, Stop: 44105, Start Num: 26  
Candidate Starts for Mattes\_69:  
(Start: 26 @43743 has 199 MA's), (48, 43902), (72, 44043), (73, 44046), (83, 44088),

Gene: Medindi\_61 Start: 39515, Stop: 39877, Start Num: 26  
Candidate Starts for Medindi\_61:  
(Start: 26 @39515 has 199 MA's), (Start: 33 @39548 has 1 MA's), (60, 39719), (72, 39815), (73, 39818), (83, 39860),

Gene: Megabear\_52 Start: 43843, Stop: 44184, Start Num: 31  
Candidate Starts for Megabear\_52:  
(Start: 31 @43843 has 8 MA's), (38, 43897), (40, 43912), (41, 43930), (49, 43996), (54, 44014), (62, 44068), (69, 44113), (72, 44134), (76, 44158), (77, 44161),

Gene: Melissauren88\_63 Start: 41372, Stop: 41734, Start Num: 26  
Candidate Starts for Melissauren88\_63:  
(Start: 26 @41372 has 199 MA's), (72, 41672), (73, 41675), (83, 41717),

Gene: MilleniumForce\_68 Start: 44060, Stop: 44416, Start Num: 26  
Candidate Starts for MilleniumForce\_68:  
(Start: 26 @44060 has 199 MA's), (72, 44360), (73, 44363),

Gene: MinionDave\_64 Start: 42746, Stop: 43108, Start Num: 26  
Candidate Starts for MinionDave\_64:  
(8, 42629), (Start: 26 @42746 has 199 MA's), (48, 42905), (72, 43046), (83, 43091),

Gene: Minnie\_68 Start: 43966, Stop: 44328, Start Num: 26  
Candidate Starts for Minnie\_68:  
(8, 43849), (Start: 26 @43966 has 199 MA's), (48, 44125), (72, 44266), (83, 44311),

Gene: MisterCuddles\_63 Start: 41692, Stop: 42054, Start Num: 26  
Candidate Starts for MisterCuddles\_63:  
(Start: 26 @41692 has 199 MA's), (72, 41992), (83, 42037),

Gene: Modragons\_69 Start: 45162, Stop: 45524, Start Num: 26  
Candidate Starts for Modragons\_69:  
(Start: 26 @45162 has 199 MA's), (60, 45366), (72, 45462), (83, 45507),

Gene: MooMoo\_66 Start: 43589, Stop: 43945, Start Num: 30

Candidate Starts for MooMoo\_66:

(Start: 30 @43589 has 3 MA's), (32, 43610), (Start: 33 @43616 has 1 MA's), (40, 43658), (45, 43712), (53, 43760), (65, 43838), (67, 43850), (72, 43883), (76, 43907), (85, 43937),

Gene: Mova\_69 Start: 42229, Stop: 42585, Start Num: 26

Candidate Starts for Mova\_69:

(Start: 26 @42229 has 199 MA's), (48, 42388), (72, 42529), (73, 42532), (83, 42568),

Gene: Ms6\_62 Start: 37737, Stop: 38099, Start Num: 26

Candidate Starts for Ms6\_62:

(Start: 26 @37737 has 199 MA's), (72, 38037), (73, 38040), (83, 38082),

Gene: MulchExplorer\_69 Start: 44252, Stop: 44593, Start Num: 26

Candidate Starts for MulchExplorer\_69:

(Start: 26 @44252 has 199 MA's), (72, 44552), (73, 44555),

Gene: NewHope4\_67 Start: 42465, Stop: 42914, Start Num: 26

Candidate Starts for NewHope4\_67:

(14, 42387), (15, 42396), (20, 42429), (Start: 26 @42465 has 199 MA's), (72, 42765),

Gene: Nimbo\_59 Start: 41301, Stop: 41663, Start Num: 26

Candidate Starts for Nimbo\_59:

(10, 41196), (12, 41202), (18, 41256), (Start: 26 @41301 has 199 MA's), (Start: 33 @41334 has 1 MA's), (72, 41601), (73, 41604), (83, 41646),

Gene: Nitzel\_62 Start: 41489, Stop: 41851, Start Num: 26

Candidate Starts for Nitzel\_62:

(Start: 26 @41489 has 199 MA's), (72, 41789), (73, 41792), (83, 41834),

Gene: Nivrat\_62 Start: 42093, Stop: 42455, Start Num: 26

Candidate Starts for Nivrat\_62:

(8, 41976), (Start: 26 @42093 has 199 MA's), (48, 42252), (72, 42393), (83, 42438),

Gene: NormanBulbieJr\_65 Start: 42386, Stop: 42748, Start Num: 26

Candidate Starts for NormanBulbieJr\_65:

(Start: 26 @42386 has 199 MA's), (52, 42560), (72, 42686), (83, 42731),

Gene: Ochi17\_69 Start: 44769, Stop: 45131, Start Num: 26

Candidate Starts for Ochi17\_69:

(Start: 26 @44769 has 199 MA's), (60, 44973), (72, 45069), (83, 45114),

Gene: OfUltron\_71 Start: 45318, Stop: 45680, Start Num: 26

Candidate Starts for OfUltron\_71:

(Start: 26 @45318 has 199 MA's), (60, 45522), (72, 45618), (83, 45663),

Gene: Ogopogo\_71 Start: 42797, Stop: 43153, Start Num: 26

Candidate Starts for Ogopogo\_71:

(9, 42686), (Start: 26 @42797 has 199 MA's), (72, 43097), (73, 43100),

Gene: OldBen\_63 Start: 42694, Stop: 43056, Start Num: 26

Candidate Starts for OldBen\_63:

(10, 42589), (12, 42595), (18, 42649), (Start: 26 @42694 has 199 MA's), (Start: 33 @42727 has 1 MA's), (72, 42994), (73, 42997), (83, 43039),

Gene: OlympiaSaint\_67 Start: 42685, Stop: 43047, Start Num: 26

Candidate Starts for OlympiaSaint\_67:

(Start: 26 @42685 has 199 MA's), (48, 42844), (72, 42985), (73, 42988), (83, 43030),

Gene: Ovechkin\_65 Start: 42688, Stop: 43050, Start Num: 26

Candidate Starts for Ovechkin\_65:

(Start: 26 @42688 has 199 MA's), (72, 42988), (73, 42991), (83, 43033),

Gene: OwlsT2W\_65 Start: 42020, Stop: 42376, Start Num: 26

Candidate Starts for OwlsT2W\_65:

(Start: 26 @42020 has 199 MA's), (48, 42179), (72, 42320),

Gene: PHappiness\_61 Start: 41273, Stop: 41629, Start Num: 26

Candidate Starts for PHappiness\_61:

(10, 41168), (12, 41174), (18, 41228), (Start: 26 @41273 has 199 MA's), (Start: 33 @41306 has 1 MA's), (60, 41477), (72, 41573), (73, 41576),

Gene: PMC\_62 Start: 42410, Stop: 42766, Start Num: 26

Candidate Starts for PMC\_62:

(Start: 26 @42410 has 199 MA's), (72, 42710), (73, 42713),

Gene: PR\_52 Start: 44447, Stop: 44788, Start Num: 31

Candidate Starts for PR\_52:

(Start: 31 @44447 has 8 MA's), (38, 44501), (40, 44516), (41, 44534), (49, 44600), (54, 44618), (62, 44672), (69, 44717), (72, 44738), (76, 44762), (77, 44765),

Gene: Pacc40\_59 Start: 40742, Stop: 41104, Start Num: 26

Candidate Starts for Pacc40\_59:

(8, 40625), (Start: 26 @40742 has 199 MA's), (48, 40901), (72, 41042), (83, 41087),

Gene: Phalconet\_63 Start: 40623, Stop: 40985, Start Num: 26

Candidate Starts for Phalconet\_63:

(Start: 26 @40623 has 199 MA's), (72, 40923), (73, 40926), (83, 40968),

Gene: Phanphagia\_61 Start: 42234, Stop: 42596, Start Num: 26

Candidate Starts for Phanphagia\_61:

(Start: 26 @42234 has 199 MA's), (72, 42534), (73, 42537), (83, 42579),

Gene: Phatniss\_63 Start: 41806, Stop: 42168, Start Num: 26

Candidate Starts for Phatniss\_63:

(Start: 26 @41806 has 199 MA's), (48, 41965), (72, 42106), (73, 42109), (83, 42151),

Gene: PhesterPhotato\_65 Start: 41443, Stop: 41799, Start Num: 26

Candidate Starts for PhesterPhotato\_65:

(Start: 26 @41443 has 199 MA's), (48, 41602), (72, 41743), (73, 41746),

Gene: Philus\_69 Start: 43883, Stop: 44239, Start Num: 26

Candidate Starts for Philus\_69:

(8, 43766), (Start: 26 @43883 has 199 MA's), (52, 44057), (72, 44183), (73, 44186), (83, 44222),

Gene: PhlipPhlop\_65 Start: 44108, Stop: 44470, Start Num: 26  
Candidate Starts for PhlipPhlop\_65:  
(8, 43991), (Start: 26 @44108 has 199 MA's), (36, 44150), (48, 44267), (72, 44408), (73, 44411), (83, 44453),

Gene: Pippy\_64 Start: 41724, Stop: 42086, Start Num: 26  
Candidate Starts for Pippy\_64:  
(Start: 26 @41724 has 199 MA's), (48, 41883), (52, 41898), (72, 42024), (83, 42069),

Gene: Plumbus\_68 Start: 42573, Stop: 42935, Start Num: 26  
Candidate Starts for Plumbus\_68:  
(Start: 26 @42573 has 199 MA's), (72, 42873), (73, 42876), (83, 42918),

Gene: Polka14\_64 Start: 42337, Stop: 42693, Start Num: 26  
Candidate Starts for Polka14\_64:  
(10, 42232), (12, 42238), (18, 42292), (Start: 26 @42337 has 199 MA's), (Start: 33 @42370 has 1 MA's), (60, 42541), (72, 42637), (73, 42640),

Gene: Pollywog\_66 Start: 43003, Stop: 43359, Start Num: 26  
Candidate Starts for Pollywog\_66:  
(Start: 26 @43003 has 199 MA's), (48, 43162), (72, 43303), (73, 43306),

Gene: Polo2Bam\_72 Start: 42241, Stop: 42768, Start Num: 14  
Candidate Starts for Polo2Bam\_72:  
(14, 42241), (15, 42250), (20, 42283), (Start: 26 @42319 has 199 MA's), (72, 42619),

Gene: PopTart\_59 Start: 40248, Stop: 40610, Start Num: 26  
Candidate Starts for PopTart\_59:  
(Start: 26 @40248 has 199 MA's), (72, 40548), (73, 40551), (83, 40593),

Gene: Priscilla\_65 Start: 42485, Stop: 42847, Start Num: 26  
Candidate Starts for Priscilla\_65:  
(Start: 26 @42485 has 199 MA's), (52, 42659), (72, 42785), (83, 42830),

Gene: QuickMath\_69 Start: 44476, Stop: 44817, Start Num: 26  
Candidate Starts for QuickMath\_69:  
(Start: 26 @44476 has 199 MA's), (72, 44776), (73, 44779),

Gene: Quico\_73 Start: 43794, Stop: 44156, Start Num: 26  
Candidate Starts for Quico\_73:  
(Start: 26 @43794 has 199 MA's), (72, 44094), (73, 44097), (83, 44139),

Gene: Radiance\_64 Start: 41901, Stop: 42263, Start Num: 26  
Candidate Starts for Radiance\_64:  
(Start: 26 @41901 has 199 MA's), (48, 42060), (72, 42201), (73, 42204), (83, 42246),

Gene: Ramsey\_64 Start: 42214, Stop: 42576, Start Num: 26  
Candidate Starts for Ramsey\_64:  
(Start: 26 @42214 has 199 MA's), (48, 42373), (72, 42514), (83, 42559),

Gene: RedBird\_64 Start: 42140, Stop: 42502, Start Num: 26  
Candidate Starts for RedBird\_64:

(10, 42035), (12, 42041), (18, 42095), (Start: 26 @42140 has 199 MA's), (Start: 33 @42173 has 1 MA's), (60, 42344), (72, 42440), (73, 42443), (83, 42485),

Gene: Renaud18\_75 Start: 44207, Stop: 44563, Start Num: 26

Candidate Starts for Renaud18\_75:

(Start: 26 @44207 has 199 MA's), (48, 44366), (72, 44507),

Gene: Rialto\_70 Start: 44435, Stop: 44797, Start Num: 26

Candidate Starts for Rialto\_70:

(Start: 26 @44435 has 199 MA's), (72, 44735), (73, 44738), (83, 44780),

Gene: Rita\_66 Start: 40513, Stop: 40875, Start Num: 26

Candidate Starts for Rita\_66:

(Start: 26 @40513 has 199 MA's), (48, 40672), (72, 40813), (83, 40858),

Gene: RitaG\_61 Start: 41618, Stop: 41974, Start Num: 26

Candidate Starts for RitaG\_61:

(10, 41513), (12, 41519), (18, 41573), (Start: 26 @41618 has 199 MA's), (Start: 33 @41651 has 1 MA's), (60, 41822), (72, 41918), (73, 41921),

Gene: Rockne\_66 Start: 42422, Stop: 42778, Start Num: 26

Candidate Starts for Rockne\_66:

(Start: 26 @42422 has 199 MA's), (72, 42722), (73, 42725),

Gene: RockyHorror\_66 Start: 41564, Stop: 41926, Start Num: 26

Candidate Starts for RockyHorror\_66:

(Start: 26 @41564 has 199 MA's), (72, 41864), (83, 41909),

Gene: Royals2015\_68 Start: 42421, Stop: 42777, Start Num: 26

Candidate Starts for Royals2015\_68:

(Start: 26 @42421 has 199 MA's), (36, 42463), (48, 42580), (72, 42721),

Gene: Ruby\_61 Start: 41693, Stop: 42055, Start Num: 26

Candidate Starts for Ruby\_61:

(Start: 26 @41693 has 199 MA's), (72, 41993), (83, 42038),

Gene: SG4\_62 Start: 41300, Stop: 41665, Start Num: 26

Candidate Starts for SG4\_62:

(Start: 26 @41300 has 199 MA's), (72, 41600),

Gene: Saal\_67 Start: 43437, Stop: 43799, Start Num: 26

Candidate Starts for Saal\_67:

(Start: 26 @43437 has 199 MA's), (48, 43596), (72, 43737), (73, 43740), (83, 43782),

Gene: Sandalphon\_66 Start: 42944, Stop: 43306, Start Num: 26

Candidate Starts for Sandalphon\_66:

(8, 42827), (Start: 26 @42944 has 199 MA's), (48, 43103), (72, 43244), (83, 43289),

Gene: Sarma624\_64 Start: 39148, Stop: 39510, Start Num: 26

Candidate Starts for Sarma624\_64:

(Start: 26 @39148 has 199 MA's), (48, 39307), (60, 39352), (72, 39448), (73, 39451), (83, 39493),

Gene: Sassafra\_64 Start: 42458, Stop: 42820, Start Num: 26

Candidate Starts for Sassafras\_64:

(10, 42353), (12, 42359), (18, 42413), (Start: 26 @42458 has 199 MA's), (Start: 33 @42491 has 1 MA's), (60, 42662), (72, 42758), (73, 42761), (83, 42803),

Gene: SassyB\_59 Start: 40248, Stop: 40610, Start Num: 26

Candidate Starts for SassyB\_59:

(Start: 26 @40248 has 199 MA's), (72, 40548), (73, 40551), (83, 40593),

Gene: Schmidt\_45 Start: 30353, Stop: 30685, Start Num: 29

Candidate Starts for Schmidt\_45:

(6, 30221), (11, 30251), (16, 30290), (Start: 29 @30353 has 9 MA's), (34, 30386), (45, 30476), (54, 30527), (71, 30644), (73, 30650), (76, 30671),

Gene: Scottish\_64 Start: 42414, Stop: 42776, Start Num: 26

Candidate Starts for Scottish\_64:

(10, 42309), (12, 42315), (18, 42369), (Start: 26 @42414 has 199 MA's), (Start: 33 @42447 has 1 MA's), (72, 42714), (73, 42717), (83, 42759),

Gene: SeaLumen\_70 Start: 42241, Stop: 42768, Start Num: 14

Candidate Starts for SeaLumen\_70:

(14, 42241), (15, 42250), (20, 42283), (Start: 26 @42319 has 199 MA's), (72, 42619),

Gene: Seabastian\_71 Start: 45319, Stop: 45681, Start Num: 26

Candidate Starts for Seabastian\_71:

(Start: 26 @45319 has 199 MA's), (60, 45523), (72, 45619), (83, 45664),

Gene: Seagreen\_64 Start: 41603, Stop: 41965, Start Num: 26

Candidate Starts for Seagreen\_64:

(Start: 26 @41603 has 199 MA's), (72, 41903), (73, 41906), (83, 41948),

Gene: Shauna1\_63 Start: 42143, Stop: 42505, Start Num: 26

Candidate Starts for Shauna1\_63:

(Start: 26 @42143 has 199 MA's), (72, 42443), (73, 42446), (83, 42488),

Gene: ShiLan\_64 Start: 42432, Stop: 42788, Start Num: 26

Candidate Starts for ShiLan\_64:

(Start: 26 @42432 has 199 MA's), (48, 42591), (72, 42732), (73, 42735),

Gene: ShowerHandel\_68 Start: 42396, Stop: 42758, Start Num: 26

Candidate Starts for ShowerHandel\_68:

(Start: 26 @42396 has 199 MA's), (48, 42555), (52, 42570), (72, 42696), (83, 42741),

Gene: SiSi\_63 Start: 41202, Stop: 41558, Start Num: 26

Candidate Starts for SiSi\_63:

(Start: 26 @41202 has 199 MA's), (72, 41502), (73, 41505),

Gene: SilverChicken\_75 Start: 42112, Stop: 42474, Start Num: 26

Candidate Starts for SilverChicken\_75:

(Start: 26 @42112 has 199 MA's), (60, 42316), (72, 42412), (73, 42415), (83, 42457),

Gene: Slim\_67 Start: 43053, Stop: 43415, Start Num: 26

Candidate Starts for Slim\_67:

(Start: 26 @43053 has 199 MA's), (72, 43353), (73, 43356), (83, 43398),

Gene: Soul22\_71 Start: 43477, Stop: 43839, Start Num: 26  
Candidate Starts for Soul22\_71:  
(Start: 26 @43477 has 199 MA's), (48, 43636), (72, 43777), (73, 43780), (83, 43822),

Gene: Spartacus\_67 Start: 42463, Stop: 42825, Start Num: 26  
Candidate Starts for Spartacus\_67:  
(Start: 26 @42463 has 199 MA's), (72, 42763), (73, 42766), (83, 42808),

Gene: Spikelee\_72 Start: 44062, Stop: 44424, Start Num: 26  
Candidate Starts for Spikelee\_72:  
(Start: 26 @44062 has 199 MA's), (72, 44362), (83, 44407),

Gene: Splinter\_51 Start: 33608, Stop: 33991, Start Num: 29  
Candidate Starts for Splinter\_51:  
(Start: 29 @33608 has 9 MA's), (45, 33731), (74, 33914), (84, 33956),

Gene: Spoonbill\_63 Start: 41578, Stop: 41934, Start Num: 26  
Candidate Starts for Spoonbill\_63:  
(10, 41473), (12, 41479), (18, 41533), (Start: 26 @41578 has 199 MA's), (Start: 33 @41611 has 1 MA's), (60, 41782), (72, 41878), (73, 41881),

Gene: Squirty\_67 Start: 43396, Stop: 43758, Start Num: 26  
Candidate Starts for Squirty\_67:  
(Start: 26 @43396 has 199 MA's), (Start: 33 @43429 has 1 MA's), (60, 43600), (72, 43696), (73, 43699), (83, 43741),

Gene: StAnnes\_63 Start: 42321, Stop: 42683, Start Num: 26  
Candidate Starts for StAnnes\_63:  
(Start: 26 @42321 has 199 MA's), (72, 42621), (73, 42624), (83, 42666),

Gene: Stap\_63 Start: 42347, Stop: 42709, Start Num: 26  
Candidate Starts for Stap\_63:  
(10, 42242), (12, 42248), (18, 42302), (Start: 26 @42347 has 199 MA's), (Start: 33 @42380 has 1 MA's), (48, 42506), (72, 42647), (73, 42650), (83, 42692),

Gene: Starcevich\_65 Start: 41944, Stop: 42300, Start Num: 26  
Candidate Starts for Starcevich\_65:  
(Start: 26 @41944 has 199 MA's), (72, 42244), (73, 42247),

Gene: Strokeseat\_61 Start: 39911, Stop: 40273, Start Num: 26  
Candidate Starts for Strokeseat\_61:  
(Start: 26 @39911 has 199 MA's), (72, 40211), (73, 40214), (83, 40256),

Gene: SuperGrey\_69 Start: 44472, Stop: 44828, Start Num: 26  
Candidate Starts for SuperGrey\_69:  
(Start: 26 @44472 has 199 MA's), (48, 44631), (72, 44772), (73, 44775), (83, 44811),

Gene: SwagPigglett\_70 Start: 44704, Stop: 45066, Start Num: 26  
Candidate Starts for SwagPigglett\_70:  
(8, 44587), (Start: 26 @44704 has 199 MA's), (48, 44863), (72, 45004), (83, 45049),

Gene: Sweetums\_60 Start: 33367, Stop: 33756, Start Num: 28

Candidate Starts for Sweetums\_60:

(Start: 28 @33367 has 7 MA's), (43, 33493), (61, 33601), (84, 33721),

Gene: TChen\_67 Start: 44519, Stop: 44881, Start Num: 26

Candidate Starts for TChen\_67:

(Start: 26 @44519 has 199 MA's), (72, 44819), (73, 44822), (83, 44864),

Gene: TDanisky\_72 Start: 43265, Stop: 43606, Start Num: 26

Candidate Starts for TDanisky\_72:

(Start: 26 @43265 has 199 MA's), (48, 43424),

Gene: TZGordon\_53 Start: 32954, Stop: 33337, Start Num: 29

Candidate Starts for TZGordon\_53:

(Start: 29 @32954 has 9 MA's), (45, 33077), (74, 33260), (84, 33302),

Gene: Taj\_70 Start: 44021, Stop: 44383, Start Num: 24

Candidate Starts for Taj\_70:

(21, 44006), (Start: 24 @44021 has 7 MA's), (72, 44321), (73, 44324), (83, 44366),

Gene: Taptic\_52 Start: 43843, Stop: 44184, Start Num: 31

Candidate Starts for Taptic\_52:

(Start: 31 @43843 has 8 MA's), (38, 43897), (40, 43912), (41, 43930), (49, 43996), (54, 44014), (62, 44068), (69, 44113), (72, 44134), (76, 44158), (77, 44161),

Gene: Tchotchke\_64 Start: 41928, Stop: 42290, Start Num: 26

Candidate Starts for Tchotchke\_64:

(Start: 26 @41928 has 199 MA's), (48, 42087), (72, 42228), (73, 42231), (83, 42273),

Gene: Teng\_62 Start: 33271, Stop: 33660, Start Num: 28

Candidate Starts for Teng\_62:

(3, 33037), (Start: 28 @33271 has 7 MA's), (43, 33397), (56, 33460), (61, 33505), (82, 33622), (84, 33625),

Gene: ThetaBob\_73 Start: 44248, Stop: 44604, Start Num: 26

Candidate Starts for ThetaBob\_73:

(9, 44137), (Start: 26 @44248 has 199 MA's), (72, 44548), (73, 44551),

Gene: TinaLin\_50 Start: 32410, Stop: 32790, Start Num: 29

Candidate Starts for TinaLin\_50:

(Start: 29 @32410 has 9 MA's), (39, 32473), (45, 32533), (64, 32650), (69, 32689), (74, 32716), (84, 32758),

Gene: Tonitrus\_70 Start: 51892, Stop: 52272, Start Num: 28

Candidate Starts for Tonitrus\_70:

(Start: 28 @51892 has 7 MA's), (49, 52051), (52, 52063), (64, 52135),

Gene: Topiatin\_72 Start: 44952, Stop: 45314, Start Num: 26

Candidate Starts for Topiatin\_72:

(8, 44835), (Start: 26 @44952 has 199 MA's), (48, 45111), (72, 45252), (73, 45255), (83, 45297),

Gene: Totinger\_65 Start: 41519, Stop: 41875, Start Num: 26

Candidate Starts for Totinger\_65:

(Start: 26 @41519 has 199 MA's), (48, 41678), (72, 41819), (73, 41822), (83, 41858),

Gene: Tweety\_65 Start: 43115, Stop: 43471, Start Num: 26  
Candidate Starts for Tweety\_65:  
(Start: 26 @43115 has 199 MA's), (48, 43274), (52, 43289), (72, 43415), (73, 43418), (83, 43454),

Gene: UncleRicky\_64 Start: 42054, Stop: 42416, Start Num: 26  
Candidate Starts for UncleRicky\_64:  
(Start: 26 @42054 has 199 MA's), (48, 42213), (72, 42354), (73, 42357), (83, 42399),

Gene: VRedHorse\_65 Start: 41397, Stop: 41759, Start Num: 26  
Candidate Starts for VRedHorse\_65:  
(Start: 26 @41397 has 199 MA's), (Start: 33 @41430 has 1 MA's), (48, 41556), (72, 41697), (73, 41700), (83, 41742),

Gene: ValentiniPuff\_101 Start: 57583, Stop: 57990, Start Num: 26  
Candidate Starts for ValentiniPuff\_101:  
(Start: 26 @57583 has 199 MA's), (36, 57622), (37, 57628), (49, 57748), (73, 57883), (86, 57961),

Gene: Velveteen\_61 Start: 39148, Stop: 39510, Start Num: 26  
Candidate Starts for Velveteen\_61:  
(Start: 26 @39148 has 199 MA's), (48, 39307), (60, 39352), (72, 39448), (73, 39451), (83, 39493),

Gene: Vendetta\_51 Start: 33608, Stop: 33991, Start Num: 29  
Candidate Starts for Vendetta\_51:  
(Start: 29 @33608 has 9 MA's), (45, 33731), (74, 33914), (84, 33956),

Gene: Veteran\_62 Start: 40798, Stop: 41154, Start Num: 26  
Candidate Starts for Veteran\_62:  
(Start: 26 @40798 has 199 MA's), (60, 41002), (72, 41098), (73, 41101), (81, 41137),

Gene: Violac\_66 Start: 42928, Stop: 43290, Start Num: 26  
Candidate Starts for Violac\_66:  
(Start: 26 @42928 has 199 MA's), (48, 43087), (52, 43102), (72, 43228), (83, 43273),

Gene: Vivum\_66 Start: 42717, Stop: 43079, Start Num: 26  
Candidate Starts for Vivum\_66:  
(8, 42600), (Start: 26 @42717 has 199 MA's), (36, 42759), (48, 42876), (72, 43017), (73, 43020), (83, 43062),

Gene: Wee\_70 Start: 44097, Stop: 44459, Start Num: 24  
Candidate Starts for Wee\_70:  
(21, 44082), (Start: 24 @44097 has 7 MA's), (72, 44397), (73, 44400), (83, 44442),

Gene: Whatsapiecost\_65 Start: 41324, Stop: 41686, Start Num: 26  
Candidate Starts for Whatsapiecost\_65:  
(Start: 26 @41324 has 199 MA's), (Start: 33 @41357 has 1 MA's), (72, 41624), (73, 41627), (83, 41669),

Gene: WillSterrel\_66 Start: 43580, Stop: 43942, Start Num: 26  
Candidate Starts for WillSterrel\_66:  
(Start: 26 @43580 has 199 MA's), (72, 43880), (73, 43883), (83, 43925),

Gene: Wrackline\_71 Start: 37367, Stop: 37759, Start Num: 28

Candidate Starts for Wrackline\_71:

(1, 36971), (2, 37061), (4, 37163), (5, 37205), (Start: 28 @37367 has 7 MA's), (36, 37394), (43, 37475), (47, 37502), (61, 37583), (66, 37619), (68, 37640), (80, 37712), (84, 37721),

Gene: XFactor\_63 Start: 40832, Stop: 41194, Start Num: 26

Candidate Starts for XFactor\_63:

(Start: 26 @40832 has 199 MA's), (72, 41132), (83, 41177),

Gene: Yoshi\_81 Start: 44512, Stop: 44874, Start Num: 26

Candidate Starts for Yoshi\_81:

(9, 44401), (Start: 26 @44512 has 199 MA's), (72, 44812), (73, 44815), (83, 44857),

Gene: Zapner\_79 Start: 44176, Stop: 44517, Start Num: 24

Candidate Starts for Zapner\_79:

(21, 44161), (Start: 24 @44176 has 7 MA's), (72, 44476), (73, 44479),

Gene: Zerg\_65 Start: 41676, Stop: 42038, Start Num: 26

Candidate Starts for Zerg\_65:

(Start: 26 @41676 has 199 MA's), (72, 41976), (83, 42021),

Gene: Zizzle\_69 Start: 44029, Stop: 44391, Start Num: 26

Candidate Starts for Zizzle\_69:

(Start: 26 @44029 has 199 MA's), (48, 44188), (52, 44203), (72, 44329), (83, 44374),