

Pham 196224



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 196224 Report

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

Pham number 196224 has 332 members, 21 are drafts.

Phages represented in each track:

- Track 1 : OneUp\_106
- Track 2 : BrutonGaster\_97
- Track 3 : Traaww1\_76, Icee\_81, MPhalcon\_81, Barbarian\_79, CrystalP\_79, Filch\_81, Kimchi\_84, Rakim\_81, Palpatine\_82, OrionPax\_79, Czyszczone1\_81, Hopey\_80, Petra64142\_84, Misfit\_81, Highbury\_79, Glexan\_79, Balomoji\_80, Flypotenuse\_76, ShamWow\_80, Mosby\_76, ChosenOne\_80, IHOP\_78, Contagion\_76, Youngblood\_83, Asriel\_79, Stark\_81, Toto\_78, Argent26\_84, Inca\_77, Gemini\_85, RiverMonster\_80, Easy2Say\_81, Kanye\_77, Teaspoon\_81, Saints25\_79, Mindy\_79, Henry\_78, Phrux\_77, Elite2014\_79, Cactus\_83, GooberAzure\_83, AmericanBeauty\_84, Ukulele\_75, Harella\_80, NoSleep\_81, Simpliphy\_79, Buck\_81, TBrady12\_83, Moldemort\_83, BaboJay\_77, Sotrice96\_81, Tuco\_81, Murphy\_80, Dusk\_77, Maxxinista\_82, Terminus\_83, Lilpickle\_79, Holt\_85, Manda\_81, Gage\_82, Thresher\_82, Lilac\_82, Gator\_78, HanKaySha\_80, Wiggin\_82, JeTaime\_80, BadStone\_77, Goldilocks\_83, StolenFromERC\_83, BigBubba\_80, StellaBean\_78
- Track 4 : Barbarian\_72, Mindy\_72, Hoonter\_76, TBrady12\_76, Manda\_74, Lilac\_75, Highbury\_72, ShereKhan\_72, TeardropMSU\_69, ShamWow\_73, Miniwave\_68, Phaux\_75, SophKB\_70, Ukulele\_68, Cactus\_76, Glexan\_72, Czyszczone1\_74, xkcd\_76, Adnama\_77, NoSleep\_74, Sotrice96\_74, Lilizi\_74, IHOP\_71, Hopey\_73, GooberAzure\_76, MPhalcon\_74, Harella\_73, AmericanBeauty\_77, Toto\_71, Pharsalus\_70, Inca\_70, Bench\_76, Dusk\_70, Gator\_71, Kanye\_70, Lilpickle\_72, Saints25\_72, Gemini\_78, Stark\_74, PhatBacter\_77, Phrux\_70, Elite2014\_72, Misfit\_74, ChosenOne\_73, Moldemort\_76, Emmina\_73, Tarkin\_72, Gage\_75, Goku\_71, JeTaime\_73, HufflyPuff\_76, Kimchi\_77, BadStone\_70, Asriel\_72, Myrale\_73, BaboJay\_70, ABCat\_70, Contagion\_69, MISSy\_74, Argent26\_77, Traaww1\_69, Xandras\_72, HanKaySha\_73, DrDrey\_73, StolenFromERC\_76, Tuco\_74, Henry\_71, Holt\_78, Paperbeatsrock\_72, Qualification\_74, Flypotenuse\_69, Bruin\_70, RiverMonster\_73, Phaja\_71, Mosby\_69, Stank\_76
- Track 5 : Marshmallow\_71, Dumbo\_73, Daikon\_75, Filch\_74, Easy2Say\_74, Pumpkin\_76, Teaspoon\_74, Porky\_72, Kostya\_73, NelitzaMV\_71, Nala\_75, Eureka\_71, CrystalP\_72, Amao\_73, GoldenSpark\_77, Nimrod\_74, Thresher\_75, Goldilocks\_76, Icee\_74, Elph10\_73, Terminus\_76, Murphy\_73, Youngblood\_76, Murica\_76, Balomoji\_73, Command613\_75, 244\_74, MadamMonkfish\_73, FairyPath\_73, Palpatine\_75, Sassay\_68, Cjw1\_73, Maxxinista\_75, FireRed\_77, Simpliphy\_72, Policronamos\_77, Wiggin\_75, BugsBunny\_73, StellaBean\_71, Willez\_68, BilboSwaggins\_72
- Track 6 : HufflyPuff\_83, Porky\_79

- Track 7 : MISSy\_81, Marshmallow\_78, Dumbo\_80, NelitzaMV\_78, Eureka\_78, Command613\_82, BugsBunny\_80, Kostya\_80, Daikon\_82, Goku\_78, Stank\_83, Elph10\_80, BilboSwaggins\_79, ABCat\_77, Bruin\_77, DrDrey\_80, Adnama\_84, Cjw1\_80, GoldenSpark\_84
- Track 8 : Bench\_83, 244\_81, FireRed\_84, Pumpkin\_83, Nimrod\_81, Hoonter\_83, Nala\_82, PhatBacter\_84, Lilizi\_81, Xandras\_79
- Track 9 : Cookies\_77, SirDuracell\_79, Pat3\_78, Bask21\_80, DoctorDiddles\_79, Phaux\_82, ChotaBhai\_80, Rimmer\_81
- Track 10 : Rimmer\_74, Petra64142\_77
- Track 11 : OrionPax\_72, SirDuracell\_72, DoctorDiddles\_72, Bask21\_73
- Track 12 : FairyPath\_80, SophKB\_77, Qualification\_81, Myrale\_80, Phaja\_78, ShereKhan\_78
- Track 13 : YassJohnny\_77, TeardropMSU\_76
- Track 14 : Buck\_74
- Track 15 : Tomaszewski\_68
- Track 16 : Miniwave\_75, Paperbeatsrock\_79, Tarkin\_79, Pharsalus\_77
- Track 17 : Pat3\_71, Cookies\_70, ChotaBhai\_73, BigBubba\_73, Rakim\_74
- Track 18 : Sassay\_75, Willez\_75
- Track 19 : Policronamos\_84
- Track 20 : Tomaszewski\_75
- Track 21 : Emmina\_80, xkcd\_83, Murica\_83
- Track 22 : Amao\_80
- Track 23 : YassJohnny\_70
- Track 24 : Celaena\_49, Bachaco\_49, Katzastrophic\_50, FlameThrower\_48
- Track 25 : SanaSana\_53, BabyYoda\_51, DirtyBubble\_50, Stromboli\_51
- Track 26 : Loviatar\_90
- Track 27 : Sharkboy\_49, Rona\_48, Dismas\_48
- Track 28 : ChiliPepper\_48
- Track 29 : Elva\_53
- Track 30 : AvGardian\_52
- Track 31 : Kieran\_48
- Track 32 : WalkingDead\_53, Stoor\_51
- Track 33 : Quenya\_51
- Track 34 : Icarian\_54
- Track 35 : A3Wally\_326
- Track 36 : PauloDiaboli\_327
- Track 37 : Big4\_338, Big4\_12
- Track 38 : Zooman\_323, Zooman\_10
- Track 39 : JuicyJay\_131, Bobby\_126, Bombitas\_122, NihilNomen\_136, Beem\_136
- Track 40 : MiaZeal\_133, Porcelain\_131, Hannaconda\_127, Squint\_131, Lucky2013\_128, Gonephishing\_128, KashFlow\_131
- Track 41 : Schatzie\_130, Klein\_131, Constella\_128, Redno2\_126, Hughesyang\_134, Yeet\_128, Minerva\_133, Odette\_138, HokkenD\_126, Dove\_120, Phoebus\_135, ThreeRngTarjay\_130, Bagrid\_135, EricMillard\_126, DmpstrDiver\_134, Wanda\_133, Duke13\_129, Zelink\_129
- Track 42 : Courthouse\_129, Ariel\_133, Superphikiman\_131
- Track 43 : LittleE\_136, Omega\_143
- Track 44 : Halley\_136, Thibault\_119, Ejimix\_128, Dallas\_135
- Track 45 : BAKA\_134
- Track 46 : Labelle\_59
- Track 47 : Madrugá\_58
- Track 48 : Patience\_60

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

The start number called the most often in the published annotations is 19, it was called in 104 of the 311 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- 244\_81, Amao\_80, AmericanBeauty\_84, Argent26\_84, Asriel\_79, BaboJay\_77, BadStone\_77, Balomoji\_80, Barbarian\_79, Bask21\_80, Bench\_83, BigBubba\_80, Buck\_81, Cactus\_83, ChosenOne\_80, ChotaBhai\_80, Contagion\_76, Cookies\_77, CrystalP\_79, Czyszczonek1\_81, DoctorDiddles\_79, Dusk\_77, Easy2Say\_81, Elite2014\_79, Emmina\_80, FairyPath\_80, Filch\_81, FireRed\_84, Flypotenuse\_76, Gage\_82, Gator\_78, Gemini\_85, Glexan\_79, Goldilocks\_83, GooberAzure\_83, HanKaySha\_80, Harella\_80, Henry\_78, Highbury\_79, Holt\_85, Hoonter\_83, Hopey\_80, IHOP\_78, Icee\_81, Inca\_77, JeTaimie\_80, Kanye\_77, Kimchi\_84, Labelle\_59, Lilac\_82, Lilizi\_81, Lilpickle\_79, MPhalcon\_81, Madrugada\_58, Manda\_81, Maxxinista\_82, Mindy\_79, Miniwave\_75, Misfit\_81, Moldemort\_83, Mosby\_76, Murica\_83, Murphy\_80, Myrale\_80, Nala\_82, Nimrod\_81, NoSleep\_81, OneUp\_106, OrionPax\_79, Palpatine\_82, Paperbeatsrock\_79, Pat3\_78, Patience\_60, Petra64142\_84, Phaja\_78, Pharsalus\_77, PhatBacter\_84, Phaux\_82, Phrux\_77, Pumpkin\_83, Quallification\_81, Rakim\_81, Rimmer\_81, RiverMonster\_80, Saints25\_79, ShamWow\_80, ShereKhan\_78, Simpliphy\_79, SirDuracell\_79, SophKB\_77, Sotrice96\_81, Stark\_81, StellaBean\_78, StolenFromERC\_83, TBrady12\_83, Tarkin\_79, Teaspoon\_81, Terminus\_83, Thresher\_82, Tomaszewski\_75, Toto\_78, Traaww1\_76, Tuco\_81, Ukulele\_75, Wiggin\_82, Xandras\_79, Youngblood\_83, xkcd\_83,

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

- ABCat\_77, Adnama\_84, BilboSwaggins\_79, Bruin\_77, BugsBunny\_80, Cjw1\_80, Command613\_82, Daikon\_82, DrDrey\_80, Dumbo\_80, Elph10\_80, Eureka\_78, Goku\_78, GoldenSpark\_84, HufflyPuff\_83, Kostya\_80, MISSy\_81, Marshmallow\_78, NelitzaMV\_78, Policronamos\_84, Porky\_79, Sassay\_75, Stank\_83, TeardropMSU\_76, Willez\_75, YassJohnny\_77,

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

- 244\_74, A3Wally\_326, ABCat\_70, Adnama\_77, Amao\_73, AmericanBeauty\_77, Argent26\_77, Ariel\_133, Asriel\_72, AvGardian\_52, BAKA\_134, BaboJay\_70, BabyYoda\_51, Bachaco\_49, BadStone\_70, Bagrid\_135, Balomoji\_73, Barbarian\_72, Bask21\_73, Beem\_136, Bench\_76, Big4\_12, Big4\_338, BigBubba\_73, BilboSwaggins\_72, Bobby\_126, Bombitas\_122, Bruin\_70, BrutonGaster\_97, Buck\_74, BugsBunny\_73, Cactus\_76, Celaena\_49, ChiliPepper\_48, ChosenOne\_73, ChotaBhai\_73, Cjw1\_73, Command613\_75, Constella\_128, Contagion\_69, Cookies\_70, Courthouse\_129, CrystalP\_72, Czyszczonek1\_74, Daikon\_75, Dallas\_135, DirtyBubble\_50, Dismas\_48, DmpstrDiver\_134, DoctorDiddles\_72, Dove\_120, DrDrey\_73, Duke13\_129, Dumbo\_73, Dusk\_70, Easy2Say\_74, Ejimix\_128, Elite2014\_72, Elph10\_73, Elva\_53, Emmina\_73, EricMillard\_126, Eureka\_71, FairyPath\_73, Filch\_74, FireRed\_77, FlameThrower\_48, Flypotenuse\_69, Gage\_75, Gator\_71, Gemini\_78, Glexan\_72, Goku\_71, GoldenSpark\_77, Goldilocks\_76, Gonephishing\_128, GooberAzure\_76, Halley\_136, HanKaySha\_73, Hannaconda\_127, Harella\_73, Henry\_71, Highbury\_72, HokkenD\_126, Holt\_78, Hoonter\_76, Hopey\_73, HufflyPuff\_76, Hughesyang\_134,

IHOP\_71, Icarian\_54, Icee\_74, Inca\_70, JeTaime\_73, JuicyJay\_131, Kanye\_70, KashFlow\_131, Katzastrophic\_50, Kieran\_48, Kimchi\_77, Klein\_131, Kostya\_73, Lilac\_75, Lilizi\_74, Lilpickle\_72, LittleE\_136, Loviatar\_90, Lucky2013\_128, MISSy\_74, MPhalcon\_74, MadamMonkfish\_73, Manda\_74, Marshmallow\_71, Maxxinista\_75, MiaZeal\_133, Mindy\_72, Minerva\_133, Miniwave\_68, Misfit\_74, Moldemort\_76, Mosby\_69, Murica\_76, Murphy\_73, Myrale\_73, Nala\_75, NelitzaMV\_71, NihilNomen\_136, Nimrod\_74, NoSleep\_74, Odette\_138, Omega\_143, OrionPax\_72, Palpatine\_75, Paperbeatsrock\_72, Pat3\_71, PauloDiaboli\_327, Petra64142\_77, Phaja\_71, Pharsalus\_70, PhatBacter\_77, Phaux\_75, Phoebus\_135, Phrux\_70, Policronamos\_77, Porcelain\_131, Porky\_72, Pumpkin\_76, Quallification\_74, Quenya\_51, Rakim\_74, Redno2\_126, Rimmer\_74, RiverMonster\_73, Rona\_48, Saints25\_72, SanaSana\_53, Sassay\_68, Schatzie\_130, ShamWow\_73, Sharkboy\_49, ShereKhan\_72, Simpliphy\_72, SirDuracell\_72, SophKB\_70, Sotrice96\_74, Squint\_131, Stank\_76, Stark\_74, StellaBean\_71, StolenFromERC\_76, Stoor\_51, Stromboli\_51, Superphikiman\_131, TBrady12\_76, Tarkin\_72, TeardropMSU\_69, Teaspoon\_74, Terminus\_76, Thibault\_119, ThreeRngTarjay\_130, Thresher\_75, Tomaszewski\_68, Toto\_71, Traaww1\_69, Tuco\_74, Ukulele\_68, WalkingDead\_53, Wanda\_133, Wiggin\_75, Willez\_68, Xandras\_72, YassJohnny\_70, Yeet\_128, Youngblood\_76, Zelink\_129, Zooman\_10, Zooman\_323, xkcd\_76,

### Summary by start number:

#### Start 9:

- Found in 1 of 332 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 311
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Elva\_53 (EB),

#### Start 10:

- Found in 23 of 332 ( 6.9% ) of genes in pham
- Manual Annotations of this start: 21 of 311
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AvGardian\_52 (EB), BabyYoda\_51 (EB), Bachaco\_49 (EB), Big4\_12 (GD2), Big4\_338 (GD2), Celaena\_49 (EB), ChiliPepper\_48 (EB), DirtyBubble\_50 (EB), Dismas\_48 (EB), FlameThrower\_48 (EB), Icarian\_54 (EB), Katzastrophic\_50 (EB), Kieran\_48 (EB), Loviatar\_90 (EB), Quenya\_51 (EB), Rona\_48 (EB), SanaSana\_53 (EB), Sharkboy\_49 (EB), Stoor\_51 (EB), Stromboli\_51 (EB), WalkingDead\_53 (EB), Zooman\_10 (GD2), Zooman\_323 (GD2),

#### Start 12:

- Found in 2 of 332 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 2 of 311
- Called 100.0% of time when present
- Phage (with cluster) where this start called: A3Wally\_326 (GD1), PauloDiaboli\_327 (GD1),

#### Start 15:

- Found in 40 of 332 ( 12.0% ) of genes in pham
- Manual Annotations of this start: 36 of 311
- Called 97.5% of time when present

- Phage (with cluster) where this start called: Ariel\_133 (J), Bagrid\_135 (J), Beem\_136 (J), Bobby\_126 (J), Bombitas\_122 (J), Constella\_128 (J), Courthouse\_129 (J), Dallas\_135 (J), DmpstrDiver\_134 (J), Dove\_120 (J), Duke13\_129 (J), Ejimix\_128 (J), EricMillard\_126 (J), Gonephishing\_128 (J), Halley\_136 (J), Hannaconda\_127 (J), HokkenD\_126 (J), Hughesyang\_134 (J), JuicyJay\_131 (J), KashFlow\_131 (J), Klein\_131 (J), LittleE\_136 (J), Lucky2013\_128 (J), MiaZeal\_133 (J), Minerva\_133 (J), NihilNomen\_136 (J), Odette\_138 (J), Omega\_143 (J), Phoebus\_135 (J), Porcelain\_131 (J), Redno2\_126 (J), Schatzie\_130 (J), Squint\_131 (J), Superphikiman\_131 (J), Thibault\_119 (J), ThreeRngTarjay\_130 (J), Wanda\_133 (J), Yeet\_128 (J), Zelink\_129 (J),

#### Start 16:

- Found in 130 of 332 ( 39.2% ) of genes in pham
- Manual Annotations of this start: 22 of 311
- Called 20.0% of time when present
- Phage (with cluster) where this start called: ABCat\_77 (E), Adnama\_84 (E), BilboSwaggins\_79 (E), Bruin\_77 (E), BugsBunny\_80 (E), Cjw1\_80 (E), Command613\_82 (E), Daikon\_82 (E), DrDrey\_80 (E), Dumbo\_80 (E), Elph10\_80 (E), Eureka\_78 (E), Goku\_78 (E), GoldenSpark\_84 (E), HufflyPuff\_83 (E), Kostya\_80 (E), MISSy\_81 (E), Marshmallow\_78 (E), NelitzaMV\_78 (E), Policronamos\_84 (E), Porky\_79 (E), Sassay\_75 (E), Stank\_83 (E), TeardropMSU\_76 (E), Willez\_75 (E), YassJohnny\_77 (E),

#### Start 17:

- Found in 171 of 332 ( 51.5% ) of genes in pham
- Manual Annotations of this start: 84 of 311
- Called 49.1% of time when present
- Phage (with cluster) where this start called: ABCat\_70 (E), Adnama\_77 (E), AmericanBeauty\_77 (E), Argent26\_77 (E), Asriel\_72 (E), BAKA\_134 (J), BaboJay\_70 (E), BadStone\_70 (E), Barbarian\_72 (E), Bench\_76 (E), BigBubba\_73 (E), Bruin\_70 (E), Buck\_74 (E), Cactus\_76 (E), ChosenOne\_73 (E), ChotaBhai\_73 (E), Contagion\_69 (E), Cookies\_70 (E), Czyszczonek\_74 (E), DrDrey\_73 (E), Dusk\_70 (E), Elite2014\_72 (E), Emmina\_73 (E), Flypotenuse\_69 (E), Gage\_75 (E), Gator\_71 (E), Gemini\_78 (E), Glexan\_72 (E), Goku\_71 (E), GooberAzure\_76 (E), HanKaySha\_73 (E), Harella\_73 (E), Henry\_71 (E), Highbury\_72 (E), Holt\_78 (E), Hoonter\_76 (E), Hopey\_73 (E), HufflyPuff\_76 (E), IHOP\_71 (E), Inca\_70 (E), JeTaime\_73 (E), Kanye\_70 (E), Kimchi\_77 (E), Lilac\_75 (E), Lilizi\_74 (E), Lilipickle\_72 (E), MISSy\_74 (E), MPhalcon\_74 (E), Manda\_74 (E), Mindy\_72 (E), Miniwave\_68 (E), Misfit\_74 (E), Moldemort\_76 (E), Mosby\_69 (E), Myrale\_73 (E), NoSleep\_74 (E), Paperbeatsrock\_72 (E), Pat3\_71 (E), Phaja\_71 (E), Pharsalus\_70 (E), PhatBacter\_77 (E), Phaux\_75 (E), Phrux\_70 (E), Quallification\_74 (E), Rakim\_74 (E), RiverMonster\_73 (E), Saints25\_72 (E), ShamWow\_73 (E), ShereKhan\_72 (E), SophKB\_70 (E), Sotrice96\_74 (E), Stank\_76 (E), Stark\_74 (E), StolenFromERC\_76 (E), TBrady12\_76 (E), Tarkin\_72 (E), TeardropMSU\_69 (E), Tomaszewski\_68 (E), Toto\_71 (E), Traaww1\_69 (E), Tuco\_74 (E), Ukulele\_68 (E), Xandras\_72 (E), xkcd\_76 (E),

#### Start 18:

- Found in 131 of 332 ( 39.5% ) of genes in pham
- Manual Annotations of this start: 40 of 311
- Called 36.6% of time when present
- Phage (with cluster) where this start called: 244\_74 (E), Amao\_73 (E), Balomoji\_73 (E), Bask21\_73 (E), BilboSwaggins\_72 (E), BugsBunny\_73 (E), Cjw1\_73 (E),

Command613\_75 (E), CrystalP\_72 (E), Daikon\_75 (E), DoctorDiddles\_72 (E), Dumbo\_73 (E), Easy2Say\_74 (E), Elph10\_73 (E), Eureka\_71 (E), FairyPath\_73 (E), Filch\_74 (E), FireRed\_77 (E), GoldenSpark\_77 (E), Goldilocks\_76 (E), Icee\_74 (E), Kostya\_73 (E), MadamMonkfish\_73 (E), Marshmallow\_71 (E), Maxxinista\_75 (E), Murica\_76 (E), Murphy\_73 (E), Nala\_75 (E), NelitzaMV\_71 (E), Nimrod\_74 (E), OrionPax\_72 (E), Palpatine\_75 (E), Petra64142\_77 (E), Policronamos\_77 (E), Porky\_72 (E), Pumpkin\_76 (E), Rimmer\_74 (E), Sassay\_68 (E), Simpliphy\_72 (E), SirDuracell\_72 (E), StellaBean\_71 (E), Teaspoon\_74 (E), Terminus\_76 (E), Thresher\_75 (E), Wiggin\_75 (E), Willez\_68 (E), YassJohnny\_70 (E), Youngblood\_76 (E),

Start 19:

- Found in 134 of 332 ( 40.4% ) of genes in pham
- Manual Annotations of this start: 104 of 311
- Called 80.6% of time when present
- Phage (with cluster) where this start called: 244\_81 (E), Amao\_80 (E), AmericanBeauty\_84 (E), Argent26\_84 (E), Asriel\_79 (E), BaboJay\_77 (E), BadStone\_77 (E), Balomoji\_80 (E), Barbarian\_79 (E), Bask21\_80 (E), Bench\_83 (E), BigBubba\_80 (E), Buck\_81 (E), Cactus\_83 (E), ChosenOne\_80 (E), ChotaBhai\_80 (E), Contagion\_76 (E), Cookies\_77 (E), CrystalP\_79 (E), Czyszczonek\_81 (E), DoctorDiddles\_79 (E), Dusk\_77 (E), Easy2Say\_81 (E), Elite2014\_79 (E), Emmina\_80 (E), FairyPath\_80 (E), Filch\_81 (E), FireRed\_84 (E), Flypotenuse\_76 (E), Gage\_82 (E), Gator\_78 (E), Gemini\_85 (E), Glexan\_79 (E), Goldilocks\_83 (E), GooberAzure\_83 (E), HanKaySha\_80 (E), Harella\_80 (E), Henry\_78 (E), Highbury\_79 (E), Holt\_85 (E), Hoonter\_83 (E), Hopey\_80 (E), IHOP\_78 (E), Icee\_81 (E), Inca\_77 (E), JeTaime\_80 (E), Kanye\_77 (E), Kimchi\_84 (E), Labelle\_59 (U), Lilac\_82 (E), Lilizi\_81 (E), Lilpickle\_79 (E), MPhalcon\_81 (E), Madrugada\_58 (U), Manda\_81 (E), Maxxinista\_82 (E), Mindy\_79 (E), Miniwave\_75 (E), Misfit\_81 (E), Moldemort\_83 (E), Mosby\_76 (E), Murica\_83 (E), Murphy\_80 (E), Myrale\_80 (E), Nala\_82 (E), Nimrod\_81 (E), NoSleep\_81 (E), OneUp\_106 (CQ2), OrionPax\_79 (E), Palpatine\_82 (E), Paperbeatsrock\_79 (E), Pat3\_78 (E), Patience\_60 (U), Petra64142\_84 (E), Phaja\_78 (E), Pharsalus\_77 (E), PhatBacter\_84 (E), Phaux\_82 (E), Phrux\_77 (E), Pumpkin\_83 (E), Qualification\_81 (E), Rakim\_81 (E), Rimmer\_81 (E), RiverMonster\_80 (E), Saints25\_79 (E), ShamWow\_80 (E), ShereKhan\_78 (E), Simpliphy\_79 (E), SirDuracell\_79 (E), SophKB\_77 (E), Sotrice96\_81 (E), Stark\_81 (E), StellaBean\_78 (E), StolenFromERC\_83 (E), TBrady12\_83 (E), Tarkin\_79 (E), Teaspoon\_81 (E), Terminus\_83 (E), Thresher\_82 (E), Tomaszewski\_75 (E), Toto\_78 (E), Traaww1\_76 (E), Tuco\_81 (E), Ukulele\_75 (E), Wiggin\_82 (E), Xandras\_79 (E), Youngblood\_83 (E), xkcd\_83 (E),

Start 26:

- Found in 1 of 332 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 311
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BrutonGaster\_97 (CQ2),

### Summary by clusters:

There are 7 clusters represented in this pham: GD1, GD2, E, J, EB, U, CQ2,

Info for manual annotations of cluster CQ2:

- Start number 19 was manually annotated 1 time for cluster CQ2.
- Start number 26 was manually annotated 1 time for cluster CQ2.

Info for manual annotations of cluster E:

- Start number 16 was manually annotated 22 times for cluster E.
- Start number 17 was manually annotated 83 times for cluster E.
- Start number 18 was manually annotated 40 times for cluster E.
- Start number 19 was manually annotated 100 times for cluster E.

Info for manual annotations of cluster EB:

- Start number 9 was manually annotated 1 time for cluster EB.
- Start number 10 was manually annotated 17 times for cluster EB.

Info for manual annotations of cluster GD1:

- Start number 12 was manually annotated 2 times for cluster GD1.

Info for manual annotations of cluster GD2:

- Start number 10 was manually annotated 4 times for cluster GD2.

Info for manual annotations of cluster J:

- Start number 15 was manually annotated 36 times for cluster J.
- Start number 17 was manually annotated 1 time for cluster J.

Info for manual annotations of cluster U:

- Start number 19 was manually annotated 3 times for cluster U.

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

Gene: 244\_81 Start: 49796, Stop: 50131, Start Num: 19

Candidate Starts for 244\_81:

(1, 49226), (3, 49343), (5, 49544), (Start: 16 @49781 has 22 MA's), (Start: 19 @49796 has 104 MA's), (24, 49832), (79, 50111),

Gene: 244\_74 Start: 47428, Stop: 47793, Start Num: 18

Candidate Starts for 244\_74:

(Start: 17 @47422 has 84 MA's), (Start: 18 @47428 has 40 MA's), (30, 47500), (38, 47554), (72, 47725),

Gene: A3Wally\_326 Start: 170993, Stop: 171403, Start Num: 12

Candidate Starts for A3Wally\_326:

(Start: 12 @170993 has 2 MA's), (22, 171035), (23, 171044), (27, 171059), (32, 171095), (47, 171203), (58, 171257), (68, 171293), (75, 171320),

Gene: ABCat\_77 Start: 50134, Stop: 50484, Start Num: 16

Candidate Starts for ABCat\_77:

(5, 49897), (Start: 16 @50134 has 22 MA's), (Start: 19 @50149 has 104 MA's), (24, 50185), (79, 50464),

Gene: ABCat\_70 Start: 47769, Stop: 48146, Start Num: 17

Candidate Starts for ABCat\_70:

(Start: 17 @47769 has 84 MA's), (Start: 18 @47775 has 40 MA's), (30, 47847), (38, 47907), (72, 48078),



Gene: Adnama\_77 Start: 47795, Stop: 48172, Start Num: 17

Candidate Starts for Adnama\_77:

(Start: 17 @47795 has 84 MA's), (Start: 18 @47801 has 40 MA's), (30, 47873), (38, 47933), (72, 48104),

Gene: Adnama\_84 Start: 50160, Stop: 50507, Start Num: 16

Candidate Starts for Adnama\_84:

(5, 49923), (Start: 16 @50160 has 22 MA's), (Start: 19 @50175 has 104 MA's), (24, 50211), (79, 50487),

Gene: Amao\_73 Start: 47195, Stop: 47566, Start Num: 18

Candidate Starts for Amao\_73:

(Start: 17 @47189 has 84 MA's), (Start: 18 @47195 has 40 MA's), (30, 47267), (38, 47327), (72, 47498),

Gene: Amao\_80 Start: 49569, Stop: 49901, Start Num: 19

Candidate Starts for Amao\_80:

(5, 49317), (Start: 16 @49554 has 22 MA's), (Start: 19 @49569 has 104 MA's), (24, 49605), (51, 49764), (63, 49803), (67, 49818), (73, 49839),

Gene: AmericanBeauty\_77 Start: 47938, Stop: 48315, Start Num: 17

Candidate Starts for AmericanBeauty\_77:

(Start: 17 @47938 has 84 MA's), (Start: 18 @47944 has 40 MA's), (30, 48016), (38, 48076), (72, 48247),

Gene: AmericanBeauty\_84 Start: 50318, Stop: 50653, Start Num: 19

Candidate Starts for AmericanBeauty\_84:

(5, 50066), (Start: 16 @50303 has 22 MA's), (Start: 19 @50318 has 104 MA's), (24, 50354), (79, 50633),

Gene: Argent26\_84 Start: 49956, Stop: 50291, Start Num: 19

Candidate Starts for Argent26\_84:

(5, 49704), (Start: 16 @49941 has 22 MA's), (Start: 19 @49956 has 104 MA's), (24, 49992), (79, 50271),

Gene: Argent26\_77 Start: 47576, Stop: 47953, Start Num: 17

Candidate Starts for Argent26\_77:

(Start: 17 @47576 has 84 MA's), (Start: 18 @47582 has 40 MA's), (30, 47654), (38, 47714), (72, 47885),

Gene: Ariel\_133 Start: 69964, Stop: 70317, Start Num: 15

Candidate Starts for Ariel\_133:

(Start: 15 @69964 has 36 MA's), (Start: 17 @69973 has 84 MA's), (70, 70243),

Gene: Asriel\_79 Start: 48512, Stop: 48844, Start Num: 19

Candidate Starts for Asriel\_79:

(5, 48260), (Start: 16 @48497 has 22 MA's), (Start: 19 @48512 has 104 MA's), (24, 48548), (79, 48824),

Gene: Asriel\_72 Start: 46132, Stop: 46509, Start Num: 17

Candidate Starts for Asriel\_72:

(Start: 17 @46132 has 84 MA's), (Start: 18 @46138 has 40 MA's), (30, 46210), (38, 46270), (72, 46441),

Gene: AvGuardian\_52 Start: 34737, Stop: 35147, Start Num: 10

Candidate Starts for AvGuardian\_52:

(Start: 10 @34737 has 21 MA's), (14, 34788), (32, 34878), (33, 34881), (40, 34935), (45, 34965), (60, 35037),

Gene: BAKA\_134 Start: 72670, Stop: 73020, Start Num: 17

Candidate Starts for BAKA\_134:

(11, 72634), (Start: 15 @72661 has 36 MA's), (Start: 17 @72670 has 84 MA's), (39, 72802), (43, 72817), (70, 72946), (72, 72952),

Gene: BaboJay\_77 Start: 49349, Stop: 49684, Start Num: 19

Candidate Starts for BaboJay\_77:

(5, 49097), (Start: 16 @49334 has 22 MA's), (Start: 19 @49349 has 104 MA's), (24, 49385), (79, 49664),

Gene: BaboJay\_70 Start: 46969, Stop: 47346, Start Num: 17

Candidate Starts for BaboJay\_70:

(Start: 17 @46969 has 84 MA's), (Start: 18 @46975 has 40 MA's), (30, 47047), (38, 47107), (72, 47278),

Gene: BabyYoda\_51 Start: 35131, Stop: 35568, Start Num: 10

Candidate Starts for BabyYoda\_51:

(Start: 10 @35131 has 21 MA's), (13, 35179), (32, 35278), (33, 35281), (37, 35317), (46, 35380), (48, 35392), (54, 35431),

Gene: Bachaco\_49 Start: 35861, Stop: 36301, Start Num: 10

Candidate Starts for Bachaco\_49:

(Start: 10 @35861 has 21 MA's), (37, 36050), (66, 36200),

Gene: BadStone\_70 Start: 47338, Stop: 47715, Start Num: 17

Candidate Starts for BadStone\_70:

(Start: 17 @47338 has 84 MA's), (Start: 18 @47344 has 40 MA's), (30, 47416), (38, 47476), (72, 47647),

Gene: BadStone\_77 Start: 49718, Stop: 50053, Start Num: 19

Candidate Starts for BadStone\_77:

(5, 49466), (Start: 16 @49703 has 22 MA's), (Start: 19 @49718 has 104 MA's), (24, 49754), (79, 50033),

Gene: Bagrid\_135 Start: 72784, Stop: 73143, Start Num: 15

Candidate Starts for Bagrid\_135:

(11, 72757), (Start: 15 @72784 has 36 MA's), (Start: 17 @72793 has 84 MA's), (39, 72925), (43, 72940), (70, 73069), (72, 73075),

Gene: Balomoji\_80 Start: 50279, Stop: 50614, Start Num: 19

Candidate Starts for Balomoji\_80:

(5, 50027), (Start: 16 @50264 has 22 MA's), (Start: 19 @50279 has 104 MA's), (24, 50315), (79, 50594),

Gene: Balomoji\_73 Start: 47905, Stop: 48276, Start Num: 18

Candidate Starts for Balomoji\_73:

(Start: 17 @47899 has 84 MA's), (Start: 18 @47905 has 40 MA's), (30, 47977), (38, 48037), (72, 48208),

Gene: Barbarian\_72 Start: 46132, Stop: 46509, Start Num: 17

Candidate Starts for Barbarian\_72:

(Start: 17 @46132 has 84 MA's), (Start: 18 @46138 has 40 MA's), (30, 46210), (38, 46270), (72, 46441),

Gene: Barbarian\_79 Start: 48512, Stop: 48844, Start Num: 19

Candidate Starts for Barbarian\_79:

(5, 48260), (Start: 16 @48497 has 22 MA's), (Start: 19 @48512 has 104 MA's), (24, 48548), (79, 48824),

Gene: Bask21\_80 Start: 49132, Stop: 49467, Start Num: 19

Candidate Starts for Bask21\_80:

(5, 48880), (Start: 16 @49117 has 22 MA's), (Start: 19 @49132 has 104 MA's), (24, 49168), (34, 49222), (57, 49348), (67, 49384), (68, 49387), (73, 49405), (79, 49447),

Gene: Bask21\_73 Start: 46758, Stop: 47129, Start Num: 18

Candidate Starts for Bask21\_73:

(Start: 17 @46752 has 84 MA's), (Start: 18 @46758 has 40 MA's), (30, 46830), (38, 46890), (52, 46989), (72, 47061),

Gene: Beem\_136 Start: 74259, Stop: 74618, Start Num: 15

Candidate Starts for Beem\_136:

(11, 74232), (Start: 15 @74259 has 36 MA's), (Start: 17 @74268 has 84 MA's), (39, 74400), (43, 74415),

Gene: Bench\_83 Start: 49816, Stop: 50148, Start Num: 19

Candidate Starts for Bench\_83:

(1, 49246), (3, 49363), (5, 49564), (Start: 16 @49801 has 22 MA's), (Start: 19 @49816 has 104 MA's), (24, 49852), (79, 50128),

Gene: Bench\_76 Start: 47439, Stop: 47813, Start Num: 17

Candidate Starts for Bench\_76:

(Start: 17 @47439 has 84 MA's), (Start: 18 @47445 has 40 MA's), (30, 47517), (38, 47577), (72, 47745),

Gene: Big4\_338 Start: 180229, Stop: 180705, Start Num: 10

Candidate Starts for Big4\_338:

(Start: 10 @180229 has 21 MA's), (25, 180340), (28, 180358), (38, 180427), (41, 180445), (42, 180448), (53, 180541), (71, 180601),

Gene: Big4\_12 Start: 5535, Stop: 6011, Start Num: 10

Candidate Starts for Big4\_12:

(Start: 10 @5535 has 21 MA's), (25, 5646), (28, 5664), (38, 5733), (41, 5751), (42, 5754), (53, 5847), (71, 5907),

Gene: BigBubba\_73 Start: 47151, Stop: 47525, Start Num: 17

Candidate Starts for BigBubba\_73:

(Start: 17 @47151 has 84 MA's), (Start: 18 @47157 has 40 MA's), (30, 47229), (38, 47289), (52, 47385), (72, 47457),

Gene: BigBubba\_80 Start: 49528, Stop: 49860, Start Num: 19

Candidate Starts for BigBubba\_80:

(5, 49276), (Start: 16 @49513 has 22 MA's), (Start: 19 @49528 has 104 MA's), (24, 49564), (79, 49840),

Gene: BilboSwaggins\_79 Start: 50142, Stop: 50489, Start Num: 16

Candidate Starts for BilboSwaggins\_79:

(5, 49905), (Start: 16 @50142 has 22 MA's), (Start: 19 @50157 has 104 MA's), (24, 50193), (79, 50469),

Gene: BilboSwaggins\_72 Start: 47783, Stop: 48154, Start Num: 18

Candidate Starts for BilboSwaggins\_72:

(Start: 17 @47777 has 84 MA's), (Start: 18 @47783 has 40 MA's), (30, 47855), (38, 47915), (72, 48086),

Gene: Bobby\_126 Start: 74360, Stop: 74719, Start Num: 15

Candidate Starts for Bobby\_126:

(11, 74333), (Start: 15 @74360 has 36 MA's), (Start: 17 @74369 has 84 MA's), (39, 74501), (43, 74516),

Gene: Bombitas\_122 Start: 71670, Stop: 72029, Start Num: 15

Candidate Starts for Bombitas\_122:

(11, 71643), (Start: 15 @71670 has 36 MA's), (Start: 17 @71679 has 84 MA's), (39, 71811), (43, 71826),

Gene: Bruin\_77 Start: 48677, Stop: 49027, Start Num: 16

Candidate Starts for Bruin\_77:

(5, 48440), (Start: 16 @48677 has 22 MA's), (Start: 19 @48692 has 104 MA's), (24, 48728), (79, 49007),

Gene: Bruin\_70 Start: 46315, Stop: 46689, Start Num: 17

Candidate Starts for Bruin\_70:

(Start: 17 @46315 has 84 MA's), (Start: 18 @46321 has 40 MA's), (30, 46393), (38, 46453), (72, 46621),

Gene: BrutonGaster\_97 Start: 63227, Stop: 63556, Start Num: 26

Candidate Starts for BrutonGaster\_97:

(Start: 26 @63227 has 1 MA's), (35, 63293), (69, 63464), (82, 63551),

Gene: Buck\_74 Start: 48026, Stop: 48394, Start Num: 17

Candidate Starts for Buck\_74:

(Start: 17 @48026 has 84 MA's), (Start: 18 @48032 has 40 MA's), (30, 48104), (72, 48326),

Gene: Buck\_81 Start: 50397, Stop: 50732, Start Num: 19

Candidate Starts for Buck\_81:

(5, 50145), (Start: 16 @50382 has 22 MA's), (Start: 19 @50397 has 104 MA's), (24, 50433), (79, 50712),

Gene: BugsBunny\_80 Start: 50209, Stop: 50556, Start Num: 16

Candidate Starts for BugsBunny\_80:

(5, 49972), (Start: 16 @50209 has 22 MA's), (Start: 19 @50224 has 104 MA's), (24, 50260), (79, 50536),

Gene: BugsBunny\_73 Start: 47853, Stop: 48221, Start Num: 18  
Candidate Starts for BugsBunny\_73:  
(Start: 17 @47847 has 84 MA's), (Start: 18 @47853 has 40 MA's), (30, 47925), (38, 47985), (72, 48153),

Gene: Cactus\_76 Start: 46793, Stop: 47170, Start Num: 17  
Candidate Starts for Cactus\_76:  
(Start: 17 @46793 has 84 MA's), (Start: 18 @46799 has 40 MA's), (30, 46871), (38, 46931), (72, 47102),

Gene: Cactus\_83 Start: 49173, Stop: 49508, Start Num: 19  
Candidate Starts for Cactus\_83:  
(5, 48921), (Start: 16 @49158 has 22 MA's), (Start: 19 @49173 has 104 MA's), (24, 49209), (79, 49488),

Gene: Celaena\_49 Start: 35623, Stop: 36063, Start Num: 10  
Candidate Starts for Celaena\_49:  
(Start: 10 @35623 has 21 MA's), (37, 35812), (66, 35962),

Gene: ChiliPepper\_48 Start: 34921, Stop: 35364, Start Num: 10  
Candidate Starts for ChiliPepper\_48:  
(Start: 10 @34921 has 21 MA's), (37, 35110), (47, 35182), (78, 35320),

Gene: ChosenOne\_80 Start: 49173, Stop: 49508, Start Num: 19  
Candidate Starts for ChosenOne\_80:  
(5, 48921), (Start: 16 @49158 has 22 MA's), (Start: 19 @49173 has 104 MA's), (24, 49209), (79, 49488),

Gene: ChosenOne\_73 Start: 46796, Stop: 47170, Start Num: 17  
Candidate Starts for ChosenOne\_73:  
(Start: 17 @46796 has 84 MA's), (Start: 18 @46802 has 40 MA's), (30, 46874), (38, 46934), (72, 47102),

Gene: ChotaBhai\_73 Start: 47117, Stop: 47494, Start Num: 17  
Candidate Starts for ChotaBhai\_73:  
(Start: 17 @47117 has 84 MA's), (Start: 18 @47123 has 40 MA's), (30, 47195), (38, 47255), (52, 47354), (72, 47426),

Gene: ChotaBhai\_80 Start: 49497, Stop: 49832, Start Num: 19  
Candidate Starts for ChotaBhai\_80:  
(5, 49245), (Start: 16 @49482 has 22 MA's), (Start: 19 @49497 has 104 MA's), (24, 49533), (34, 49587), (57, 49713), (67, 49749), (68, 49752), (73, 49770), (79, 49812),

Gene: Cjw1\_73 Start: 48499, Stop: 48867, Start Num: 18  
Candidate Starts for Cjw1\_73:  
(Start: 17 @48493 has 84 MA's), (Start: 18 @48499 has 40 MA's), (30, 48571), (38, 48631), (72, 48799),

Gene: Cjw1\_80 Start: 50855, Stop: 51202, Start Num: 16  
Candidate Starts for Cjw1\_80:  
(5, 50618), (Start: 16 @50855 has 22 MA's), (Start: 19 @50870 has 104 MA's), (24, 50906), (79, 51182),

Gene: Command613\_82 Start: 50197, Stop: 50547, Start Num: 16  
Candidate Starts for Command613\_82:  
(5, 49960), (Start: 16 @50197 has 22 MA's), (Start: 19 @50212 has 104 MA's), (24, 50248), (79, 50527),

Gene: Command613\_75 Start: 47838, Stop: 48209, Start Num: 18  
Candidate Starts for Command613\_75:  
(Start: 17 @47832 has 84 MA's), (Start: 18 @47838 has 40 MA's), (30, 47910), (38, 47970), (72, 48141),

Gene: Constella\_128 Start: 72912, Stop: 73271, Start Num: 15  
Candidate Starts for Constella\_128:  
(11, 72885), (Start: 15 @72912 has 36 MA's), (Start: 17 @72921 has 84 MA's), (39, 73053), (43, 73068), (70, 73197), (72, 73203),

Gene: Contagion\_76 Start: 48973, Stop: 49308, Start Num: 19  
Candidate Starts for Contagion\_76:  
(5, 48721), (Start: 16 @48958 has 22 MA's), (Start: 19 @48973 has 104 MA's), (24, 49009), (79, 49288),

Gene: Contagion\_69 Start: 46596, Stop: 46970, Start Num: 17  
Candidate Starts for Contagion\_69:  
(Start: 17 @46596 has 84 MA's), (Start: 18 @46602 has 40 MA's), (30, 46674), (38, 46734), (72, 46902),

Gene: Cookies\_77 Start: 49354, Stop: 49689, Start Num: 19  
Candidate Starts for Cookies\_77:  
(5, 49102), (Start: 16 @49339 has 22 MA's), (Start: 19 @49354 has 104 MA's), (24, 49390), (34, 49444), (57, 49570), (67, 49606), (68, 49609), (73, 49627), (79, 49669),

Gene: Cookies\_70 Start: 46974, Stop: 47351, Start Num: 17  
Candidate Starts for Cookies\_70:  
(Start: 17 @46974 has 84 MA's), (Start: 18 @46980 has 40 MA's), (30, 47052), (38, 47112), (52, 47211), (72, 47283),

Gene: Courthouse\_129 Start: 69822, Stop: 70175, Start Num: 15  
Candidate Starts for Courthouse\_129:  
(Start: 15 @69822 has 36 MA's), (Start: 17 @69831 has 84 MA's), (70, 70101),

Gene: CrystalP\_79 Start: 50157, Stop: 50489, Start Num: 19  
Candidate Starts for CrystalP\_79:  
(5, 49905), (Start: 16 @50142 has 22 MA's), (Start: 19 @50157 has 104 MA's), (24, 50193), (79, 50469),

Gene: CrystalP\_72 Start: 47783, Stop: 48154, Start Num: 18  
Candidate Starts for CrystalP\_72:  
(Start: 17 @47777 has 84 MA's), (Start: 18 @47783 has 40 MA's), (30, 47855), (38, 47915), (72, 48086),

Gene: Czyszczone1\_81 Start: 49679, Stop: 50011, Start Num: 19  
Candidate Starts for Czyszczone1\_81:  
(5, 49427), (Start: 16 @49664 has 22 MA's), (Start: 19 @49679 has 104 MA's), (24, 49715), (79, 49991),

Gene: Czyszczone1\_74 Start: 47302, Stop: 47676, Start Num: 17

Candidate Starts for Czyszczone1\_74:

(Start: 17 @47302 has 84 MA's), (Start: 18 @47308 has 40 MA's), (30, 47380), (38, 47440), (72, 47608),

Gene: Daikon\_75 Start: 47926, Stop: 48297, Start Num: 18

Candidate Starts for Daikon\_75:

(Start: 17 @47920 has 84 MA's), (Start: 18 @47926 has 40 MA's), (30, 47998), (38, 48058), (72, 48229),

Gene: Daikon\_82 Start: 50285, Stop: 50635, Start Num: 16

Candidate Starts for Daikon\_82:

(5, 50048), (Start: 16 @50285 has 22 MA's), (Start: 19 @50300 has 104 MA's), (24, 50336), (79, 50615),

Gene: Dallas\_135 Start: 73726, Stop: 74085, Start Num: 15

Candidate Starts for Dallas\_135:

(11, 73699), (Start: 15 @73726 has 36 MA's), (Start: 17 @73735 has 84 MA's), (39, 73867), (43, 73882), (72, 74017),

Gene: DirtyBubble\_50 Start: 34799, Stop: 35236, Start Num: 10

Candidate Starts for DirtyBubble\_50:

(Start: 10 @34799 has 21 MA's), (13, 34847), (32, 34946), (33, 34949), (37, 34985), (46, 35048), (48, 35060), (54, 35099),

Gene: Dismas\_48 Start: 34843, Stop: 35286, Start Num: 10

Candidate Starts for Dismas\_48:

(Start: 10 @34843 has 21 MA's), (29, 34978), (31, 34981), (40, 35047), (48, 35104), (61, 35155), (75, 35206),

Gene: DmpstrDiver\_134 Start: 73073, Stop: 73432, Start Num: 15

Candidate Starts for DmpstrDiver\_134:

(11, 73046), (Start: 15 @73073 has 36 MA's), (Start: 17 @73082 has 84 MA's), (39, 73214), (43, 73229), (70, 73358), (72, 73364),

Gene: DoctorDiddles\_72 Start: 47167, Stop: 47538, Start Num: 18

Candidate Starts for DoctorDiddles\_72:

(Start: 17 @47161 has 84 MA's), (Start: 18 @47167 has 40 MA's), (30, 47239), (38, 47299), (52, 47398), (72, 47470),

Gene: DoctorDiddles\_79 Start: 49541, Stop: 49876, Start Num: 19

Candidate Starts for DoctorDiddles\_79:

(5, 49289), (Start: 16 @49526 has 22 MA's), (Start: 19 @49541 has 104 MA's), (24, 49577), (34, 49631), (57, 49757), (67, 49793), (68, 49796), (73, 49814), (79, 49856),

Gene: Dove\_120 Start: 68672, Stop: 69031, Start Num: 15

Candidate Starts for Dove\_120:

(11, 68645), (Start: 15 @68672 has 36 MA's), (Start: 17 @68681 has 84 MA's), (39, 68813), (43, 68828), (70, 68957), (72, 68963),

Gene: DrDrey\_73 Start: 48218, Stop: 48595, Start Num: 17

Candidate Starts for DrDrey\_73:

(Start: 17 @48218 has 84 MA's), (Start: 18 @48224 has 40 MA's), (30, 48296), (38, 48356), (72, 48527),

Gene: DrDrey\_80 Start: 50583, Stop: 50930, Start Num: 16

Candidate Starts for DrDrey\_80:

(5, 50346), (Start: 16 @50583 has 22 MA's), (Start: 19 @50598 has 104 MA's), (24, 50634), (79, 50910),

Gene: Duke13\_129 Start: 70374, Stop: 70733, Start Num: 15

Candidate Starts for Duke13\_129:

(11, 70347), (Start: 15 @70374 has 36 MA's), (Start: 17 @70383 has 84 MA's), (39, 70515), (43, 70530), (70, 70659), (72, 70665),

Gene: Dumbo\_73 Start: 46707, Stop: 47075, Start Num: 18

Candidate Starts for Dumbo\_73:

(Start: 17 @46701 has 84 MA's), (Start: 18 @46707 has 40 MA's), (30, 46779), (38, 46839), (72, 47007),

Gene: Dumbo\_80 Start: 49063, Stop: 49413, Start Num: 16

Candidate Starts for Dumbo\_80:

(5, 48826), (Start: 16 @49063 has 22 MA's), (Start: 19 @49078 has 104 MA's), (24, 49114), (79, 49393),

Gene: Dusk\_70 Start: 46998, Stop: 47375, Start Num: 17

Candidate Starts for Dusk\_70:

(Start: 17 @46998 has 84 MA's), (Start: 18 @47004 has 40 MA's), (30, 47076), (38, 47136), (72, 47307),

Gene: Dusk\_77 Start: 49378, Stop: 49713, Start Num: 19

Candidate Starts for Dusk\_77:

(5, 49126), (Start: 16 @49363 has 22 MA's), (Start: 19 @49378 has 104 MA's), (24, 49414), (79, 49693),

Gene: Easy2Say\_74 Start: 48248, Stop: 48619, Start Num: 18

Candidate Starts for Easy2Say\_74:

(Start: 17 @48242 has 84 MA's), (Start: 18 @48248 has 40 MA's), (30, 48320), (38, 48380), (72, 48551),

Gene: Easy2Say\_81 Start: 50622, Stop: 50954, Start Num: 19

Candidate Starts for Easy2Say\_81:

(5, 50370), (Start: 16 @50607 has 22 MA's), (Start: 19 @50622 has 104 MA's), (24, 50658), (79, 50934),

Gene: Ejimix\_128 Start: 73794, Stop: 74153, Start Num: 15

Candidate Starts for Ejimix\_128:

(11, 73767), (Start: 15 @73794 has 36 MA's), (Start: 17 @73803 has 84 MA's), (39, 73935), (43, 73950), (72, 74085),

Gene: Elite2014\_79 Start: 49172, Stop: 49507, Start Num: 19

Candidate Starts for Elite2014\_79:

(5, 48920), (Start: 16 @49157 has 22 MA's), (Start: 19 @49172 has 104 MA's), (24, 49208), (79, 49487),



Gene: Elite2014\_72 Start: 46795, Stop: 47169, Start Num: 17  
Candidate Starts for Elite2014\_72:  
(Start: 17 @46795 has 84 MA's), (Start: 18 @46801 has 40 MA's), (30, 46873), (38, 46933), (72, 47101),

Gene: Elph10\_73 Start: 46806, Stop: 47174, Start Num: 18  
Candidate Starts for Elph10\_73:  
(Start: 17 @46800 has 84 MA's), (Start: 18 @46806 has 40 MA's), (30, 46878), (38, 46938), (72, 47106),

Gene: Elph10\_80 Start: 49162, Stop: 49509, Start Num: 16  
Candidate Starts for Elph10\_80:  
(5, 48925), (Start: 16 @49162 has 22 MA's), (Start: 19 @49177 has 104 MA's), (24, 49213), (79, 49489),

Gene: Elva\_53 Start: 35217, Stop: 35639, Start Num: 9  
Candidate Starts for Elva\_53:  
(Start: 9 @35217 has 1 MA's), (32, 35367), (33, 35370), (40, 35424), (62, 35523),

Gene: Emmina\_73 Start: 46702, Stop: 47076, Start Num: 17  
Candidate Starts for Emmina\_73:  
(Start: 17 @46702 has 84 MA's), (Start: 18 @46708 has 40 MA's), (30, 46780), (38, 46840), (72, 47008),

Gene: Emmina\_80 Start: 49079, Stop: 49411, Start Num: 19  
Candidate Starts for Emmina\_80:  
(Start: 16 @49064 has 22 MA's), (Start: 19 @49079 has 104 MA's), (24, 49115), (79, 49391),

Gene: EricMillard\_126 Start: 72298, Stop: 72657, Start Num: 15  
Candidate Starts for EricMillard\_126:  
(11, 72271), (Start: 15 @72298 has 36 MA's), (Start: 17 @72307 has 84 MA's), (39, 72439), (43, 72454), (70, 72583), (72, 72589),

Gene: Eureka\_78 Start: 49628, Stop: 49975, Start Num: 16  
Candidate Starts for Eureka\_78:  
(5, 49391), (Start: 16 @49628 has 22 MA's), (Start: 19 @49643 has 104 MA's), (24, 49679), (79, 49955),

Gene: Eureka\_71 Start: 47272, Stop: 47640, Start Num: 18  
Candidate Starts for Eureka\_71:  
(Start: 17 @47266 has 84 MA's), (Start: 18 @47272 has 40 MA's), (30, 47344), (38, 47404), (72, 47572),

Gene: FairyPath\_80 Start: 50291, Stop: 50626, Start Num: 19  
Candidate Starts for FairyPath\_80:  
(5, 50039), (Start: 16 @50276 has 22 MA's), (Start: 19 @50291 has 104 MA's), (24, 50327), (49, 50468), (57, 50507), (67, 50543), (68, 50546), (73, 50564), (79, 50606),

Gene: FairyPath\_73 Start: 47917, Stop: 48288, Start Num: 18  
Candidate Starts for FairyPath\_73:  
(Start: 17 @47911 has 84 MA's), (Start: 18 @47917 has 40 MA's), (30, 47989), (38, 48049), (72, 48220),

Gene: Filch\_81 Start: 49104, Stop: 49436, Start Num: 19

Candidate Starts for Filch\_81:

(5, 48852), (Start: 16 @49089 has 22 MA's), (Start: 19 @49104 has 104 MA's), (24, 49140), (79, 49416),

Gene: Filch\_74 Start: 46733, Stop: 47101, Start Num: 18

Candidate Starts for Filch\_74:

(Start: 17 @46727 has 84 MA's), (Start: 18 @46733 has 40 MA's), (30, 46805), (38, 46865), (72, 47033),

Gene: FireRed\_84 Start: 50666, Stop: 51001, Start Num: 19

Candidate Starts for FireRed\_84:

(1, 50096), (3, 50213), (5, 50414), (Start: 16 @50651 has 22 MA's), (Start: 19 @50666 has 104 MA's), (24, 50702), (79, 50981),

Gene: FireRed\_77 Start: 48298, Stop: 48663, Start Num: 18

Candidate Starts for FireRed\_77:

(Start: 17 @48292 has 84 MA's), (Start: 18 @48298 has 40 MA's), (30, 48370), (38, 48424), (72, 48595),

Gene: FlameThrower\_48 Start: 34660, Stop: 35100, Start Num: 10

Candidate Starts for FlameThrower\_48:

(Start: 10 @34660 has 21 MA's), (37, 34849), (66, 34999),

Gene: Flypotenuse\_76 Start: 49163, Stop: 49498, Start Num: 19

Candidate Starts for Flypotenuse\_76:

(5, 48911), (Start: 16 @49148 has 22 MA's), (Start: 19 @49163 has 104 MA's), (24, 49199), (79, 49478),

Gene: Flypotenuse\_69 Start: 46783, Stop: 47160, Start Num: 17

Candidate Starts for Flypotenuse\_69:

(Start: 17 @46783 has 84 MA's), (Start: 18 @46789 has 40 MA's), (30, 46861), (38, 46921), (72, 47092),

Gene: Gage\_75 Start: 47576, Stop: 47953, Start Num: 17

Candidate Starts for Gage\_75:

(Start: 17 @47576 has 84 MA's), (Start: 18 @47582 has 40 MA's), (30, 47654), (38, 47714), (72, 47885),

Gene: Gage\_82 Start: 49956, Stop: 50291, Start Num: 19

Candidate Starts for Gage\_82:

(5, 49704), (Start: 16 @49941 has 22 MA's), (Start: 19 @49956 has 104 MA's), (24, 49992), (79, 50271),

Gene: Gator\_71 Start: 47629, Stop: 48006, Start Num: 17

Candidate Starts for Gator\_71:

(Start: 17 @47629 has 84 MA's), (Start: 18 @47635 has 40 MA's), (30, 47707), (38, 47767), (72, 47938),

Gene: Gator\_78 Start: 50009, Stop: 50341, Start Num: 19

Candidate Starts for Gator\_78:

(5, 49757), (Start: 16 @49994 has 22 MA's), (Start: 19 @50009 has 104 MA's), (24, 50045), (79, 50321),

Gene: Gemini\_85 Start: 50473, Stop: 50808, Start Num: 19

Candidate Starts for Gemini\_85:

(5, 50221), (Start: 16 @50458 has 22 MA's), (Start: 19 @50473 has 104 MA's), (24, 50509), (79, 50788),

Gene: Gemini\_78 Start: 48093, Stop: 48470, Start Num: 17

Candidate Starts for Gemini\_78:

(Start: 17 @48093 has 84 MA's), (Start: 18 @48099 has 40 MA's), (30, 48171), (38, 48231), (72, 48402),

Gene: Glexan\_72 Start: 47913, Stop: 48290, Start Num: 17

Candidate Starts for Glexan\_72:

(Start: 17 @47913 has 84 MA's), (Start: 18 @47919 has 40 MA's), (30, 47991), (38, 48051), (72, 48222),

Gene: Glexan\_79 Start: 50293, Stop: 50628, Start Num: 19

Candidate Starts for Glexan\_79:

(5, 50041), (Start: 16 @50278 has 22 MA's), (Start: 19 @50293 has 104 MA's), (24, 50329), (79, 50608),

Gene: Goku\_78 Start: 49357, Stop: 49704, Start Num: 16

Candidate Starts for Goku\_78:

(5, 49120), (Start: 16 @49357 has 22 MA's), (Start: 19 @49372 has 104 MA's), (24, 49408), (79, 49684),

Gene: Goku\_71 Start: 46995, Stop: 47369, Start Num: 17

Candidate Starts for Goku\_71:

(Start: 17 @46995 has 84 MA's), (Start: 18 @47001 has 40 MA's), (30, 47073), (38, 47133), (72, 47301),

Gene: GoldenSpark\_77 Start: 47582, Stop: 47953, Start Num: 18

Candidate Starts for GoldenSpark\_77:

(Start: 17 @47576 has 84 MA's), (Start: 18 @47582 has 40 MA's), (30, 47654), (38, 47714), (72, 47885),

Gene: GoldenSpark\_84 Start: 49941, Stop: 50291, Start Num: 16

Candidate Starts for GoldenSpark\_84:

(5, 49704), (Start: 16 @49941 has 22 MA's), (Start: 19 @49956 has 104 MA's), (24, 49992), (79, 50271),

Gene: Goldilocks\_76 Start: 47080, Stop: 47451, Start Num: 18

Candidate Starts for Goldilocks\_76:

(Start: 17 @47074 has 84 MA's), (Start: 18 @47080 has 40 MA's), (30, 47152), (38, 47212), (72, 47383),

Gene: Goldilocks\_83 Start: 49454, Stop: 49786, Start Num: 19

Candidate Starts for Goldilocks\_83:

(5, 49202), (Start: 16 @49439 has 22 MA's), (Start: 19 @49454 has 104 MA's), (24, 49490), (79, 49766),

Gene: Gonephishing\_128 Start: 69464, Stop: 69817, Start Num: 15

Candidate Starts for Gonephishing\_128:

(Start: 15 @69464 has 36 MA's), (Start: 17 @69473 has 84 MA's), (70, 69743), (79, 69794),

Gene: GooberAzure\_76 Start: 47576, Stop: 47953, Start Num: 17

Candidate Starts for GooberAzure\_76:

(Start: 17 @47576 has 84 MA's), (Start: 18 @47582 has 40 MA's), (30, 47654), (38, 47714), (72, 47885),

Gene: GooberAzure\_83 Start: 49956, Stop: 50291, Start Num: 19

Candidate Starts for GooberAzure\_83:

(5, 49704), (Start: 16 @49941 has 22 MA's), (Start: 19 @49956 has 104 MA's), (24, 49992), (79, 50271),

Gene: Halley\_136 Start: 74110, Stop: 74469, Start Num: 15

Candidate Starts for Halley\_136:

(11, 74083), (Start: 15 @74110 has 36 MA's), (Start: 17 @74119 has 84 MA's), (39, 74251), (43, 74266), (72, 74401),

Gene: HanKaySha\_73 Start: 46880, Stop: 47254, Start Num: 17

Candidate Starts for HanKaySha\_73:

(Start: 17 @46880 has 84 MA's), (Start: 18 @46886 has 40 MA's), (30, 46958), (38, 47018), (72, 47186),

Gene: HanKaySha\_80 Start: 49257, Stop: 49589, Start Num: 19

Candidate Starts for HanKaySha\_80:

(5, 49005), (Start: 16 @49242 has 22 MA's), (Start: 19 @49257 has 104 MA's), (24, 49293), (79, 49569),

Gene: Hannaconda\_127 Start: 70117, Stop: 70470, Start Num: 15

Candidate Starts for Hannaconda\_127:

(Start: 15 @70117 has 36 MA's), (Start: 17 @70126 has 84 MA's), (70, 70396), (79, 70447),

Gene: Harella\_73 Start: 48429, Stop: 48806, Start Num: 17

Candidate Starts for Harella\_73:

(Start: 17 @48429 has 84 MA's), (Start: 18 @48435 has 40 MA's), (30, 48507), (38, 48567), (72, 48738),

Gene: Harella\_80 Start: 50809, Stop: 51144, Start Num: 19

Candidate Starts for Harella\_80:

(5, 50557), (Start: 16 @50794 has 22 MA's), (Start: 19 @50809 has 104 MA's), (24, 50845), (79, 51124),

Gene: Henry\_78 Start: 49597, Stop: 49929, Start Num: 19

Candidate Starts for Henry\_78:

(5, 49345), (Start: 16 @49582 has 22 MA's), (Start: 19 @49597 has 104 MA's), (24, 49633), (79, 49909),

Gene: Henry\_71 Start: 47217, Stop: 47594, Start Num: 17

Candidate Starts for Henry\_71:

(Start: 17 @47217 has 84 MA's), (Start: 18 @47223 has 40 MA's), (30, 47295), (38, 47355), (72, 47526),

Gene: Highbury\_72 Start: 46868, Stop: 47242, Start Num: 17

Candidate Starts for Highbury\_72:

(Start: 17 @46868 has 84 MA's), (Start: 18 @46874 has 40 MA's), (30, 46946), (38, 47006), (72, 47174),

Gene: Highbury\_79 Start: 49245, Stop: 49580, Start Num: 19

Candidate Starts for Highbury\_79:

(5, 48993), (Start: 16 @49230 has 22 MA's), (Start: 19 @49245 has 104 MA's), (24, 49281), (79, 49560),

Gene: HokkenD\_126 Start: 72994, Stop: 73353, Start Num: 15

Candidate Starts for HokkenD\_126:

(11, 72967), (Start: 15 @72994 has 36 MA's), (Start: 17 @73003 has 84 MA's), (39, 73135), (43, 73150), (70, 73279), (72, 73285),

Gene: Holt\_85 Start: 50370, Stop: 50705, Start Num: 19

Candidate Starts for Holt\_85:

(5, 50118), (Start: 16 @50355 has 22 MA's), (Start: 19 @50370 has 104 MA's), (24, 50406), (79, 50685),

Gene: Holt\_78 Start: 47990, Stop: 48367, Start Num: 17

Candidate Starts for Holt\_78:

(Start: 17 @47990 has 84 MA's), (Start: 18 @47996 has 40 MA's), (30, 48068), (38, 48128), (72, 48299),

Gene: Hoonter\_76 Start: 47576, Stop: 47953, Start Num: 17

Candidate Starts for Hoonter\_76:

(Start: 17 @47576 has 84 MA's), (Start: 18 @47582 has 40 MA's), (30, 47654), (38, 47714), (72, 47885),

Gene: Hoonter\_83 Start: 49956, Stop: 50288, Start Num: 19

Candidate Starts for Hoonter\_83:

(1, 49386), (3, 49503), (5, 49704), (Start: 16 @49941 has 22 MA's), (Start: 19 @49956 has 104 MA's), (24, 49992), (79, 50268),

Gene: Hokey\_80 Start: 49789, Stop: 50121, Start Num: 19

Candidate Starts for Hokey\_80:

(5, 49537), (Start: 16 @49774 has 22 MA's), (Start: 19 @49789 has 104 MA's), (24, 49825), (79, 50101),

Gene: Hokey\_73 Start: 47412, Stop: 47786, Start Num: 17

Candidate Starts for Hokey\_73:

(Start: 17 @47412 has 84 MA's), (Start: 18 @47418 has 40 MA's), (30, 47490), (38, 47550), (72, 47718),

Gene: HufflyPuff\_83 Start: 50607, Stop: 50954, Start Num: 16

Candidate Starts for HufflyPuff\_83:

(Start: 16 @50607 has 22 MA's), (Start: 19 @50622 has 104 MA's), (24, 50658), (79, 50934),

Gene: HufflyPuff\_76 Start: 48245, Stop: 48619, Start Num: 17

Candidate Starts for HufflyPuff\_76:

(Start: 17 @48245 has 84 MA's), (Start: 18 @48251 has 40 MA's), (30, 48323), (38, 48383), (72, 48551),

Gene: Hughesyang\_134 Start: 73880, Stop: 74239, Start Num: 15

Candidate Starts for Hughesyang\_134:

(11, 73853), (Start: 15 @73880 has 36 MA's), (Start: 17 @73889 has 84 MA's), (39, 74021), (43, 74036), (70, 74165), (72, 74171),

Gene: IHOP\_71 Start: 47341, Stop: 47718, Start Num: 17

Candidate Starts for IHOP\_71:

(Start: 17 @47341 has 84 MA's), (Start: 18 @47347 has 40 MA's), (30, 47419), (38, 47479), (72, 47650),

Gene: IHOP\_78 Start: 49721, Stop: 50053, Start Num: 19

Candidate Starts for IHOP\_78:

(5, 49469), (Start: 16 @49706 has 22 MA's), (Start: 19 @49721 has 104 MA's), (24, 49757), (79, 50033),

Gene: Icarian\_54 Start: 35804, Stop: 36241, Start Num: 10

Candidate Starts for Icarian\_54:

(Start: 10 @35804 has 21 MA's), (13, 35852), (32, 35951), (33, 35954), (37, 35990), (48, 36065), (54, 36104), (76, 36185),

Gene: Icee\_81 Start: 49620, Stop: 49955, Start Num: 19

Candidate Starts for Icee\_81:

(5, 49368), (Start: 16 @49605 has 22 MA's), (Start: 19 @49620 has 104 MA's), (24, 49656), (79, 49935),

Gene: Icee\_74 Start: 47246, Stop: 47617, Start Num: 18

Candidate Starts for Icee\_74:

(Start: 17 @47240 has 84 MA's), (Start: 18 @47246 has 40 MA's), (30, 47318), (38, 47378), (72, 47549),

Gene: Inca\_70 Start: 45869, Stop: 46243, Start Num: 17

Candidate Starts for Inca\_70:

(Start: 17 @45869 has 84 MA's), (Start: 18 @45875 has 40 MA's), (30, 45947), (38, 46007), (72, 46175),

Gene: Inca\_77 Start: 48246, Stop: 48581, Start Num: 19

Candidate Starts for Inca\_77:

(5, 47994), (Start: 16 @48231 has 22 MA's), (Start: 19 @48246 has 104 MA's), (24, 48282), (79, 48561),

Gene: JeTaime\_73 Start: 48064, Stop: 48435, Start Num: 17

Candidate Starts for JeTaime\_73:

(Start: 17 @48064 has 84 MA's), (Start: 18 @48070 has 40 MA's), (30, 48142), (38, 48196), (72, 48367),

Gene: JeTaime\_80 Start: 50438, Stop: 50770, Start Num: 19

Candidate Starts for JeTaime\_80:

(5, 50186), (Start: 16 @50423 has 22 MA's), (Start: 19 @50438 has 104 MA's), (24, 50474), (79, 50750),

Gene: JuicyJay\_131 Start: 75395, Stop: 75754, Start Num: 15

Candidate Starts for JuicyJay\_131:

(11, 75368), (Start: 15 @75395 has 36 MA's), (Start: 17 @75404 has 84 MA's), (39, 75536), (43, 75551),

Gene: Kanye\_70 Start: 46922, Stop: 47299, Start Num: 17

Candidate Starts for Kanye\_70:

(Start: 17 @46922 has 84 MA's), (Start: 18 @46928 has 40 MA's), (30, 47000), (38, 47060), (72, 47231),

Gene: Kanye\_77 Start: 49302, Stop: 49637, Start Num: 19

Candidate Starts for Kanye\_77:

(5, 49050), (Start: 16 @49287 has 22 MA's), (Start: 19 @49302 has 104 MA's), (24, 49338), (79, 49617),

Gene: KashFlow\_131 Start: 71552, Stop: 71905, Start Num: 15

Candidate Starts for KashFlow\_131:

(Start: 15 @71552 has 36 MA's), (Start: 17 @71561 has 84 MA's), (70, 71831), (79, 71882),

Gene: Katzastrophic\_50 Start: 35170, Stop: 35610, Start Num: 10

Candidate Starts for Katzastrophic\_50:

(Start: 10 @35170 has 21 MA's), (37, 35359), (66, 35509),

Gene: Kieran\_48 Start: 34884, Stop: 35327, Start Num: 10

Candidate Starts for Kieran\_48:

(2, 34482), (4, 34656), (6, 34737), (Start: 10 @34884 has 21 MA's), (37, 35073), (47, 35145), (78, 35283),

Gene: Kimchi\_84 Start: 49959, Stop: 50294, Start Num: 19

Candidate Starts for Kimchi\_84:

(5, 49707), (Start: 16 @49944 has 22 MA's), (Start: 19 @49959 has 104 MA's), (24, 49995), (79, 50274),

Gene: Kimchi\_77 Start: 47579, Stop: 47956, Start Num: 17

Candidate Starts for Kimchi\_77:

(Start: 17 @47579 has 84 MA's), (Start: 18 @47585 has 40 MA's), (30, 47657), (38, 47717), (72, 47888),

Gene: Klein\_131 Start: 71031, Stop: 71390, Start Num: 15

Candidate Starts for Klein\_131:

(11, 71004), (Start: 15 @71031 has 36 MA's), (Start: 17 @71040 has 84 MA's), (39, 71172), (43, 71187), (70, 71316), (72, 71322),

Gene: Kostya\_73 Start: 47446, Stop: 47817, Start Num: 18

Candidate Starts for Kostya\_73:

(Start: 17 @47440 has 84 MA's), (Start: 18 @47446 has 40 MA's), (30, 47518), (38, 47578), (72, 47749),

Gene: Kostya\_80 Start: 49805, Stop: 50155, Start Num: 16

Candidate Starts for Kostya\_80:

(5, 49568), (Start: 16 @49805 has 22 MA's), (Start: 19 @49820 has 104 MA's), (24, 49856), (79, 50135),

Gene: Labelle\_59 Start: 43035, Stop: 43403, Start Num: 19

Candidate Starts for Labelle\_59:

(Start: 19 @43035 has 104 MA's), (23, 43056), (39, 43164), (42, 43173), (55, 43269), (64, 43296),

Gene: Lilac\_75 Start: 47197, Stop: 47571, Start Num: 17

Candidate Starts for Lilac\_75:

(Start: 17 @47197 has 84 MA's), (Start: 18 @47203 has 40 MA's), (30, 47275), (38, 47335), (72, 47503),

Gene: Lilac\_82 Start: 49574, Stop: 49906, Start Num: 19

Candidate Starts for Lilac\_82:

(5, 49322), (Start: 16 @49559 has 22 MA's), (Start: 19 @49574 has 104 MA's), (24, 49610), (79, 49886),

Gene: Lilizi\_74 Start: 46910, Stop: 47284, Start Num: 17

Candidate Starts for Lilizi\_74:

(Start: 17 @46910 has 84 MA's), (Start: 18 @46916 has 40 MA's), (30, 46988), (38, 47048), (72, 47216),

Gene: Lilizi\_81 Start: 49287, Stop: 49619, Start Num: 19

Candidate Starts for Lilizi\_81:

(1, 48717), (3, 48834), (5, 49035), (Start: 16 @49272 has 22 MA's), (Start: 19 @49287 has 104 MA's), (24, 49323), (79, 49599),

Gene: Lilpickle\_72 Start: 46795, Stop: 47169, Start Num: 17

Candidate Starts for Lilpickle\_72:

(Start: 17 @46795 has 84 MA's), (Start: 18 @46801 has 40 MA's), (30, 46873), (38, 46933), (72, 47101),

Gene: Lilpickle\_79 Start: 49172, Stop: 49507, Start Num: 19

Candidate Starts for Lilpickle\_79:

(5, 48920), (Start: 16 @49157 has 22 MA's), (Start: 19 @49172 has 104 MA's), (24, 49208), (79, 49487),

Gene: LittleE\_136 Start: 72806, Stop: 73159, Start Num: 15

Candidate Starts for LittleE\_136:

(Start: 15 @72806 has 36 MA's), (Start: 17 @72815 has 84 MA's),

Gene: Loviatar\_90 Start: 36204, Stop: 36644, Start Num: 10

Candidate Starts for Loviatar\_90:

(Start: 10 @36204 has 21 MA's), (13, 36252), (37, 36390), (46, 36453), (48, 36465), (54, 36507), (74, 36576),

Gene: Lucky2013\_128 Start: 69682, Stop: 70035, Start Num: 15

Candidate Starts for Lucky2013\_128:

(Start: 15 @69682 has 36 MA's), (Start: 17 @69691 has 84 MA's), (70, 69961), (79, 70012),

Gene: MISSy\_81 Start: 49663, Stop: 50013, Start Num: 16

Candidate Starts for MISSy\_81:

(5, 49426), (Start: 16 @49663 has 22 MA's), (Start: 19 @49678 has 104 MA's), (24, 49714), (79, 49993),

Gene: MISSy\_74 Start: 47301, Stop: 47675, Start Num: 17

Candidate Starts for MISSy\_74:

(Start: 17 @47301 has 84 MA's), (Start: 18 @47307 has 40 MA's), (30, 47379), (38, 47439), (72, 47607),



Gene: MPhalcon\_81 Start: 49671, Stop: 50006, Start Num: 19  
Candidate Starts for MPhalcon\_81:  
(5, 49419), (Start: 16 @49656 has 22 MA's), (Start: 19 @49671 has 104 MA's), (24, 49707), (79, 49986),

Gene: MPhalcon\_74 Start: 47294, Stop: 47668, Start Num: 17  
Candidate Starts for MPhalcon\_74:  
(Start: 17 @47294 has 84 MA's), (Start: 18 @47300 has 40 MA's), (30, 47372), (38, 47432), (72, 47600),

Gene: MadamMonkfish\_73 Start: 46525, Stop: 46893, Start Num: 18  
Candidate Starts for MadamMonkfish\_73:  
(Start: 17 @46519 has 84 MA's), (Start: 18 @46525 has 40 MA's), (30, 46597), (38, 46657), (72, 46825),

Gene: Madruga\_58 Start: 42688, Stop: 43056, Start Num: 19  
Candidate Starts for Madruga\_58:  
(Start: 19 @42688 has 104 MA's), (39, 42817), (42, 42826), (55, 42922), (64, 42949),

Gene: Manda\_74 Start: 48378, Stop: 48755, Start Num: 17  
Candidate Starts for Manda\_74:  
(Start: 17 @48378 has 84 MA's), (Start: 18 @48384 has 40 MA's), (30, 48456), (38, 48516), (72, 48687),

Gene: Manda\_81 Start: 50758, Stop: 51093, Start Num: 19  
Candidate Starts for Manda\_81:  
(5, 50506), (Start: 16 @50743 has 22 MA's), (Start: 19 @50758 has 104 MA's), (24, 50794), (79, 51073),

Gene: Marshmallow\_71 Start: 48077, Stop: 48448, Start Num: 18  
Candidate Starts for Marshmallow\_71:  
(Start: 17 @48071 has 84 MA's), (Start: 18 @48077 has 40 MA's), (30, 48149), (38, 48209), (72, 48380),

Gene: Marshmallow\_78 Start: 50436, Stop: 50783, Start Num: 16  
Candidate Starts for Marshmallow\_78:  
(5, 50199), (Start: 16 @50436 has 22 MA's), (Start: 19 @50451 has 104 MA's), (24, 50487), (79, 50763),

Gene: Maxxinista\_75 Start: 47176, Stop: 47544, Start Num: 18  
Candidate Starts for Maxxinista\_75:  
(Start: 17 @47170 has 84 MA's), (Start: 18 @47176 has 40 MA's), (30, 47248), (38, 47308), (72, 47476),

Gene: Maxxinista\_82 Start: 49547, Stop: 49879, Start Num: 19  
Candidate Starts for Maxxinista\_82:  
(5, 49295), (Start: 16 @49532 has 22 MA's), (Start: 19 @49547 has 104 MA's), (24, 49583), (79, 49859),

Gene: MiaZeal\_133 Start: 70821, Stop: 71174, Start Num: 15  
Candidate Starts for MiaZeal\_133:  
(Start: 15 @70821 has 36 MA's), (Start: 17 @70830 has 84 MA's), (70, 71100), (79, 71151),

Gene: Mindy\_72 Start: 46383, Stop: 46760, Start Num: 17

Candidate Starts for Mindy\_72:

(Start: 17 @46383 has 84 MA's), (Start: 18 @46389 has 40 MA's), (30, 46461), (38, 46521), (72, 46692),

Gene: Mindy\_79 Start: 48763, Stop: 49095, Start Num: 19

Candidate Starts for Mindy\_79:

(5, 48511), (Start: 16 @48748 has 22 MA's), (Start: 19 @48763 has 104 MA's), (24, 48799), (79, 49075),

Gene: Minerva\_133 Start: 72481, Stop: 72840, Start Num: 15

Candidate Starts for Minerva\_133:

(11, 72454), (Start: 15 @72481 has 36 MA's), (Start: 17 @72490 has 84 MA's), (39, 72622), (43, 72637), (70, 72766), (72, 72772),

Gene: Miniwave\_68 Start: 46836, Stop: 47213, Start Num: 17

Candidate Starts for Miniwave\_68:

(Start: 17 @46836 has 84 MA's), (Start: 18 @46842 has 40 MA's), (30, 46914), (38, 46974), (72, 47145),

Gene: Miniwave\_75 Start: 49216, Stop: 49551, Start Num: 19

Candidate Starts for Miniwave\_75:

(5, 48964), (Start: 16 @49201 has 22 MA's), (Start: 19 @49216 has 104 MA's), (24, 49252), (49, 49393), (57, 49432), (67, 49468), (68, 49471), (73, 49489), (79, 49531),

Gene: Misfit\_81 Start: 50690, Stop: 51025, Start Num: 19

Candidate Starts for Misfit\_81:

(5, 50438), (Start: 16 @50675 has 22 MA's), (Start: 19 @50690 has 104 MA's), (24, 50726), (79, 51005),

Gene: Misfit\_74 Start: 48313, Stop: 48687, Start Num: 17

Candidate Starts for Misfit\_74:

(Start: 17 @48313 has 84 MA's), (Start: 18 @48319 has 40 MA's), (30, 48391), (38, 48451), (72, 48619),

Gene: Moldemort\_76 Start: 47395, Stop: 47772, Start Num: 17

Candidate Starts for Moldemort\_76:

(Start: 17 @47395 has 84 MA's), (Start: 18 @47401 has 40 MA's), (30, 47473), (38, 47533), (72, 47704),

Gene: Moldemort\_83 Start: 49775, Stop: 50107, Start Num: 19

Candidate Starts for Moldemort\_83:

(5, 49523), (Start: 16 @49760 has 22 MA's), (Start: 19 @49775 has 104 MA's), (24, 49811), (79, 50087),

Gene: Mosby\_76 Start: 48973, Stop: 49308, Start Num: 19

Candidate Starts for Mosby\_76:

(5, 48721), (Start: 16 @48958 has 22 MA's), (Start: 19 @48973 has 104 MA's), (24, 49009), (79, 49288),

Gene: Mosby\_69 Start: 46596, Stop: 46970, Start Num: 17

Candidate Starts for Mosby\_69:

(Start: 17 @46596 has 84 MA's), (Start: 18 @46602 has 40 MA's), (30, 46674), (38, 46734), (72, 46902),

Gene: Murica\_76 Start: 48251, Stop: 48619, Start Num: 18

Candidate Starts for Murica\_76:

(Start: 17 @48245 has 84 MA's), (Start: 18 @48251 has 40 MA's), (30, 48323), (38, 48383), (72, 48551),

Gene: Murica\_83 Start: 50622, Stop: 50954, Start Num: 19

Candidate Starts for Murica\_83:

(Start: 16 @50607 has 22 MA's), (Start: 19 @50622 has 104 MA's), (24, 50658), (79, 50934),

Gene: Murphy\_73 Start: 47688, Stop: 48056, Start Num: 18

Candidate Starts for Murphy\_73:

(Start: 17 @47682 has 84 MA's), (Start: 18 @47688 has 40 MA's), (30, 47760), (38, 47820), (72, 47988),

Gene: Murphy\_80 Start: 50059, Stop: 50391, Start Num: 19

Candidate Starts for Murphy\_80:

(5, 49807), (Start: 16 @50044 has 22 MA's), (Start: 19 @50059 has 104 MA's), (24, 50095), (79, 50371),

Gene: Myrale\_80 Start: 50316, Stop: 50651, Start Num: 19

Candidate Starts for Myrale\_80:

(5, 50064), (Start: 16 @50301 has 22 MA's), (Start: 19 @50316 has 104 MA's), (24, 50352), (49, 50493), (57, 50532), (67, 50568), (68, 50571), (73, 50589), (79, 50631),

Gene: Myrale\_73 Start: 47936, Stop: 48313, Start Num: 17

Candidate Starts for Myrale\_73:

(Start: 17 @47936 has 84 MA's), (Start: 18 @47942 has 40 MA's), (30, 48014), (38, 48074), (72, 48245),

Gene: Nala\_75 Start: 47812, Stop: 48177, Start Num: 18

Candidate Starts for Nala\_75:

(Start: 17 @47806 has 84 MA's), (Start: 18 @47812 has 40 MA's), (30, 47884), (38, 47938), (72, 48109),

Gene: Nala\_82 Start: 50180, Stop: 50515, Start Num: 19

Candidate Starts for Nala\_82:

(1, 49610), (3, 49727), (5, 49928), (Start: 16 @50165 has 22 MA's), (Start: 19 @50180 has 104 MA's), (24, 50216), (79, 50495),

Gene: NelitzaMV\_78 Start: 49247, Stop: 49597, Start Num: 16

Candidate Starts for NelitzaMV\_78:

(5, 49010), (Start: 16 @49247 has 22 MA's), (Start: 19 @49262 has 104 MA's), (24, 49298), (79, 49577),

Gene: NelitzaMV\_71 Start: 46888, Stop: 47259, Start Num: 18

Candidate Starts for NelitzaMV\_71:

(Start: 17 @46882 has 84 MA's), (Start: 18 @46888 has 40 MA's), (30, 46960), (38, 47020), (72, 47191),

Gene: NihilNomen\_136 Start: 73340, Stop: 73699, Start Num: 15

Candidate Starts for NihilNomen\_136:

(11, 73313), (Start: 15 @73340 has 36 MA's), (Start: 17 @73349 has 84 MA's), (39, 73481), (43, 73496),

Gene: Nimrod\_74 Start: 48509, Stop: 48880, Start Num: 18

Candidate Starts for Nimrod\_74:

(Start: 17 @48503 has 84 MA's), (Start: 18 @48509 has 40 MA's), (30, 48581), (38, 48641), (72, 48812),

Gene: Nimrod\_81 Start: 50883, Stop: 51218, Start Num: 19

Candidate Starts for Nimrod\_81:

(1, 50313), (3, 50430), (5, 50631), (Start: 16 @50868 has 22 MA's), (Start: 19 @50883 has 104 MA's), (24, 50919), (79, 51198),

Gene: NoSleep\_74 Start: 47140, Stop: 47514, Start Num: 17

Candidate Starts for NoSleep\_74:

(Start: 17 @47140 has 84 MA's), (Start: 18 @47146 has 40 MA's), (30, 47218), (38, 47278), (72, 47446),

Gene: NoSleep\_81 Start: 49517, Stop: 49852, Start Num: 19

Candidate Starts for NoSleep\_81:

(5, 49265), (Start: 16 @49502 has 22 MA's), (Start: 19 @49517 has 104 MA's), (24, 49553), (79, 49832),

Gene: Odette\_138 Start: 74911, Stop: 75270, Start Num: 15

Candidate Starts for Odette\_138:

(11, 74884), (Start: 15 @74911 has 36 MA's), (Start: 17 @74920 has 84 MA's), (39, 75052), (43, 75067), (70, 75196), (72, 75202),

Gene: Omega\_143 Start: 74487, Stop: 74840, Start Num: 15

Candidate Starts for Omega\_143:

(Start: 15 @74487 has 36 MA's), (Start: 17 @74496 has 84 MA's),

Gene: OneUp\_106 Start: 66594, Stop: 66947, Start Num: 19

Candidate Starts for OneUp\_106:

(Start: 19 @66594 has 104 MA's), (30, 66660), (45, 66759), (50, 66783), (82, 66942),

Gene: OrionPax\_72 Start: 46894, Stop: 47265, Start Num: 18

Candidate Starts for OrionPax\_72:

(Start: 17 @46888 has 84 MA's), (Start: 18 @46894 has 40 MA's), (30, 46966), (38, 47026), (52, 47125), (72, 47197),

Gene: OrionPax\_79 Start: 49268, Stop: 49603, Start Num: 19

Candidate Starts for OrionPax\_79:

(5, 49016), (Start: 16 @49253 has 22 MA's), (Start: 19 @49268 has 104 MA's), (24, 49304), (79, 49583),

Gene: Palpatine\_82 Start: 50649, Stop: 50981, Start Num: 19

Candidate Starts for Palpatine\_82:

(5, 50397), (Start: 16 @50634 has 22 MA's), (Start: 19 @50649 has 104 MA's), (24, 50685), (79, 50961),

Gene: Palpatine\_75 Start: 48278, Stop: 48646, Start Num: 18

Candidate Starts for Palpatine\_75:

(Start: 17 @48272 has 84 MA's), (Start: 18 @48278 has 40 MA's), (30, 48350), (38, 48410), (72, 48578),

Gene: Paperbeatsrock\_79 Start: 49894, Stop: 50229, Start Num: 19

Candidate Starts for Paperbeatsrock\_79:

(5, 49642), (Start: 16 @49879 has 22 MA's), (Start: 19 @49894 has 104 MA's), (24, 49930), (49, 50071), (57, 50110), (67, 50146), (68, 50149), (73, 50167), (79, 50209),

Gene: Paperbeatsrock\_72 Start: 47514, Stop: 47891, Start Num: 17

Candidate Starts for Paperbeatsrock\_72:

(Start: 17 @47514 has 84 MA's), (Start: 18 @47520 has 40 MA's), (30, 47592), (38, 47652), (72, 47823),

Gene: Pat3\_78 Start: 48426, Stop: 48761, Start Num: 19

Candidate Starts for Pat3\_78:

(5, 48174), (Start: 16 @48411 has 22 MA's), (Start: 19 @48426 has 104 MA's), (24, 48462), (34, 48516), (57, 48642), (67, 48678), (68, 48681), (73, 48699), (79, 48741),

Gene: Pat3\_71 Start: 46046, Stop: 46423, Start Num: 17

Candidate Starts for Pat3\_71:

(Start: 17 @46046 has 84 MA's), (Start: 18 @46052 has 40 MA's), (30, 46124), (38, 46184), (52, 46283), (72, 46355),

Gene: Patience\_60 Start: 43583, Stop: 43951, Start Num: 19

Candidate Starts for Patience\_60:

(Start: 19 @43583 has 104 MA's), (23, 43604), (39, 43712), (42, 43721), (55, 43817), (64, 43844), (77, 43901),

Gene: PauloDiaboli\_327 Start: 168500, Stop: 168892, Start Num: 12

Candidate Starts for PauloDiaboli\_327:

(Start: 12 @168500 has 2 MA's), (20, 168533), (27, 168563), (32, 168599), (56, 168755), (59, 168767), (67, 168794), (68, 168797), (81, 168878),

Gene: Petra64142\_84 Start: 51113, Stop: 51448, Start Num: 19

Candidate Starts for Petra64142\_84:

(5, 50861), (Start: 16 @51098 has 22 MA's), (Start: 19 @51113 has 104 MA's), (24, 51149), (79, 51428),

Gene: Petra64142\_77 Start: 48748, Stop: 49110, Start Num: 18

Candidate Starts for Petra64142\_77:

(Start: 17 @48742 has 84 MA's), (Start: 18 @48748 has 40 MA's), (30, 48820), (72, 49042),

Gene: Phaja\_78 Start: 49720, Stop: 50055, Start Num: 19

Candidate Starts for Phaja\_78:

(5, 49468), (Start: 16 @49705 has 22 MA's), (Start: 19 @49720 has 104 MA's), (24, 49756), (49, 49897), (57, 49936), (67, 49972), (68, 49975), (73, 49993), (79, 50035),

Gene: Phaja\_71 Start: 47340, Stop: 47717, Start Num: 17

Candidate Starts for Phaja\_71:

(Start: 17 @47340 has 84 MA's), (Start: 18 @47346 has 40 MA's), (30, 47418), (38, 47478), (72, 47649),

Gene: Pharsalus\_70 Start: 47314, Stop: 47691, Start Num: 17

Candidate Starts for Pharsalus\_70:

(Start: 17 @47314 has 84 MA's), (Start: 18 @47320 has 40 MA's), (30, 47392), (38, 47452), (72, 47623),

Gene: Pharsalus\_77 Start: 49694, Stop: 50029, Start Num: 19

Candidate Starts for Pharsalus\_77:

(5, 49442), (Start: 16 @49679 has 22 MA's), (Start: 19 @49694 has 104 MA's), (24, 49730), (49, 49871), (57, 49910), (67, 49946), (68, 49949), (73, 49967), (79, 50009),

Gene: PhatBacter\_77 Start: 48289, Stop: 48663, Start Num: 17

Candidate Starts for PhatBacter\_77:

(Start: 17 @48289 has 84 MA's), (Start: 18 @48295 has 40 MA's), (30, 48367), (38, 48427), (72, 48595),

Gene: PhatBacter\_84 Start: 50666, Stop: 51001, Start Num: 19

Candidate Starts for PhatBacter\_84:

(1, 50096), (3, 50213), (5, 50414), (Start: 16 @50651 has 22 MA's), (Start: 19 @50666 has 104 MA's), (24, 50702), (79, 50981),

Gene: Phaux\_75 Start: 48284, Stop: 48658, Start Num: 17

Candidate Starts for Phaux\_75:

(Start: 17 @48284 has 84 MA's), (Start: 18 @48290 has 40 MA's), (30, 48362), (38, 48422), (72, 48590),

Gene: Phaux\_82 Start: 50661, Stop: 50996, Start Num: 19

Candidate Starts for Phaux\_82:

(5, 50409), (Start: 16 @50646 has 22 MA's), (Start: 19 @50661 has 104 MA's), (24, 50697), (34, 50751), (57, 50877), (67, 50913), (68, 50916), (73, 50934), (79, 50976),

Gene: Phoebus\_135 Start: 75234, Stop: 75593, Start Num: 15

Candidate Starts for Phoebus\_135:

(11, 75207), (Start: 15 @75234 has 36 MA's), (Start: 17 @75243 has 84 MA's), (39, 75375), (43, 75390), (70, 75519), (72, 75525),

Gene: Phrux\_70 Start: 46880, Stop: 47254, Start Num: 17

Candidate Starts for Phrux\_70:

(Start: 17 @46880 has 84 MA's), (Start: 18 @46886 has 40 MA's), (30, 46958), (38, 47018), (72, 47186),

Gene: Phrux\_77 Start: 49257, Stop: 49589, Start Num: 19

Candidate Starts for Phrux\_77:

(5, 49005), (Start: 16 @49242 has 22 MA's), (Start: 19 @49257 has 104 MA's), (24, 49293), (79, 49569),

Gene: Policronamos\_84 Start: 50646, Stop: 50996, Start Num: 16

Candidate Starts for Policronamos\_84:

(5, 50409), (Start: 16 @50646 has 22 MA's), (Start: 19 @50661 has 104 MA's), (24, 50697), (34, 50751), (57, 50877), (67, 50913), (68, 50916), (73, 50934), (79, 50976),

Gene: Policronamos\_77 Start: 48290, Stop: 48658, Start Num: 18

Candidate Starts for Policronamos\_77:

(Start: 17 @48284 has 84 MA's), (Start: 18 @48290 has 40 MA's), (30, 48362), (38, 48422), (72, 48590),

Gene: Porcelain\_131 Start: 70628, Stop: 70981, Start Num: 15

Candidate Starts for Porcelain\_131:

(Start: 15 @70628 has 36 MA's), (Start: 17 @70637 has 84 MA's), (70, 70907), (79, 70958),

Gene: Porky\_79 Start: 49072, Stop: 49419, Start Num: 16

Candidate Starts for Porky\_79:

(Start: 16 @49072 has 22 MA's), (Start: 19 @49087 has 104 MA's), (24, 49123), (79, 49399),

Gene: Porky\_72 Start: 46716, Stop: 47084, Start Num: 18

Candidate Starts for Porky\_72:

(Start: 17 @46710 has 84 MA's), (Start: 18 @46716 has 40 MA's), (30, 46788), (38, 46848), (72, 47016),

Gene: Pumpkin\_76 Start: 47944, Stop: 48312, Start Num: 18

Candidate Starts for Pumpkin\_76:

(Start: 17 @47938 has 84 MA's), (Start: 18 @47944 has 40 MA's), (30, 48016), (38, 48076), (72, 48244),

Gene: Pumpkin\_83 Start: 50315, Stop: 50647, Start Num: 19

Candidate Starts for Pumpkin\_83:

(1, 49745), (3, 49862), (5, 50063), (Start: 16 @50300 has 22 MA's), (Start: 19 @50315 has 104 MA's), (24, 50351), (79, 50627),

Gene: Quallification\_81 Start: 50302, Stop: 50637, Start Num: 19

Candidate Starts for Quallification\_81:

(5, 50050), (Start: 16 @50287 has 22 MA's), (Start: 19 @50302 has 104 MA's), (24, 50338), (49, 50479), (57, 50518), (67, 50554), (68, 50557), (73, 50575), (79, 50617),

Gene: Quallification\_74 Start: 47922, Stop: 48299, Start Num: 17

Candidate Starts for Quallification\_74:

(Start: 17 @47922 has 84 MA's), (Start: 18 @47928 has 40 MA's), (30, 48000), (38, 48060), (72, 48231),

Gene: Quenya\_51 Start: 35296, Stop: 35745, Start Num: 10

Candidate Starts for Quenya\_51:

(7, 35191), (8, 35203), (Start: 10 @35296 has 21 MA's), (31, 35434), (36, 35467), (40, 35500), (48, 35557), (61, 35608),

Gene: Rakim\_81 Start: 49771, Stop: 50103, Start Num: 19

Candidate Starts for Rakim\_81:

(5, 49519), (Start: 16 @49756 has 22 MA's), (Start: 19 @49771 has 104 MA's), (24, 49807), (79, 50083),

Gene: Rakim\_74 Start: 47394, Stop: 47768, Start Num: 17

Candidate Starts for Rakim\_74:

(Start: 17 @47394 has 84 MA's), (Start: 18 @47400 has 40 MA's), (30, 47472), (38, 47532), (52, 47628), (72, 47700),

Gene: Redno2\_126 Start: 70622, Stop: 70981, Start Num: 15

Candidate Starts for Redno2\_126:

(11, 70595), (Start: 15 @70622 has 36 MA's), (Start: 17 @70631 has 84 MA's), (39, 70763), (43, 70778), (70, 70907), (72, 70913),

Gene: Rimmer\_74 Start: 47642, Stop: 48004, Start Num: 18

Candidate Starts for Rimmer\_74:

(Start: 17 @47636 has 84 MA's), (Start: 18 @47642 has 40 MA's), (30, 47714), (72, 47936),

Gene: Rimmer\_81 Start: 50007, Stop: 50342, Start Num: 19

Candidate Starts for Rimmer\_81:

(5, 49755), (Start: 16 @49992 has 22 MA's), (Start: 19 @50007 has 104 MA's), (24, 50043), (34, 50097), (57, 50223), (67, 50259), (68, 50262), (73, 50280), (79, 50322),

Gene: RiverMonster\_80 Start: 49835, Stop: 50167, Start Num: 19

Candidate Starts for RiverMonster\_80:

(5, 49583), (Start: 16 @49820 has 22 MA's), (Start: 19 @49835 has 104 MA's), (24, 49871), (79, 50147),

Gene: RiverMonster\_73 Start: 47458, Stop: 47832, Start Num: 17

Candidate Starts for RiverMonster\_73:

(Start: 17 @47458 has 84 MA's), (Start: 18 @47464 has 40 MA's), (30, 47536), (38, 47596), (72, 47764),

Gene: Rona\_48 Start: 34834, Stop: 35277, Start Num: 10

Candidate Starts for Rona\_48:

(Start: 10 @34834 has 21 MA's), (29, 34969), (31, 34972), (40, 35038), (48, 35095), (61, 35146), (75, 35197),

Gene: Saints25\_72 Start: 46868, Stop: 47242, Start Num: 17

Candidate Starts for Saints25\_72:

(Start: 17 @46868 has 84 MA's), (Start: 18 @46874 has 40 MA's), (30, 46946), (38, 47006), (72, 47174),

Gene: Saints25\_79 Start: 49245, Stop: 49580, Start Num: 19

Candidate Starts for Saints25\_79:

(5, 48993), (Start: 16 @49230 has 22 MA's), (Start: 19 @49245 has 104 MA's), (24, 49281), (79, 49560),

Gene: SanaSana\_53 Start: 35511, Stop: 35948, Start Num: 10

Candidate Starts for SanaSana\_53:

(Start: 10 @35511 has 21 MA's), (13, 35559), (32, 35658), (33, 35661), (37, 35697), (46, 35760), (48, 35772), (54, 35811),

Gene: Sassay\_75 Start: 47920, Stop: 48270, Start Num: 16

Candidate Starts for Sassay\_75:

(5, 47683), (Start: 16 @47920 has 22 MA's), (Start: 19 @47935 has 104 MA's), (24, 47971), (49, 48112), (57, 48151), (67, 48187), (68, 48190), (73, 48208), (79, 48250),

Gene: Sassay\_68 Start: 45564, Stop: 45932, Start Num: 18

Candidate Starts for Sassay\_68:

(Start: 17 @45558 has 84 MA's), (Start: 18 @45564 has 40 MA's), (30, 45636), (38, 45696), (72, 45864),

Gene: Schatzie\_130 Start: 73330, Stop: 73689, Start Num: 15



Candidate Starts for Schatzie\_130:

(11, 73303), (Start: 15 @73330 has 36 MA's), (Start: 17 @73339 has 84 MA's), (39, 73471), (43, 73486), (70, 73615), (72, 73621),

Gene: ShamWow\_73 Start: 47777, Stop: 48154, Start Num: 17

Candidate Starts for ShamWow\_73:

(Start: 17 @47777 has 84 MA's), (Start: 18 @47783 has 40 MA's), (30, 47855), (38, 47915), (72, 48086),

Gene: ShamWow\_80 Start: 50157, Stop: 50489, Start Num: 19

Candidate Starts for ShamWow\_80:

(5, 49905), (Start: 16 @50142 has 22 MA's), (Start: 19 @50157 has 104 MA's), (24, 50193), (79, 50469),

Gene: Sharkboy\_49 Start: 34933, Stop: 35376, Start Num: 10

Candidate Starts for Sharkboy\_49:

(Start: 10 @34933 has 21 MA's), (29, 35068), (31, 35071), (40, 35137), (48, 35194), (61, 35245), (75, 35296),

Gene: ShereKhan\_72 Start: 47846, Stop: 48223, Start Num: 17

Candidate Starts for ShereKhan\_72:

(Start: 17 @47846 has 84 MA's), (Start: 18 @47852 has 40 MA's), (30, 47924), (38, 47984), (72, 48155),

Gene: ShereKhan\_78 Start: 50227, Stop: 50562, Start Num: 19

Candidate Starts for ShereKhan\_78:

(5, 49975), (Start: 16 @50212 has 22 MA's), (Start: 19 @50227 has 104 MA's), (24, 50263), (49, 50404), (57, 50443), (67, 50479), (68, 50482), (73, 50500), (79, 50542),

Gene: Simpliphy\_79 Start: 49235, Stop: 49570, Start Num: 19

Candidate Starts for Simpliphy\_79:

(5, 48983), (Start: 16 @49220 has 22 MA's), (Start: 19 @49235 has 104 MA's), (24, 49271), (79, 49550),

Gene: Simpliphy\_72 Start: 46864, Stop: 47232, Start Num: 18

Candidate Starts for Simpliphy\_72:

(Start: 17 @46858 has 84 MA's), (Start: 18 @46864 has 40 MA's), (30, 46936), (38, 46996), (72, 47164),

Gene: SirDuracell\_79 Start: 48521, Stop: 48856, Start Num: 19

Candidate Starts for SirDuracell\_79:

(5, 48269), (Start: 16 @48506 has 22 MA's), (Start: 19 @48521 has 104 MA's), (24, 48557), (34, 48611), (57, 48737), (67, 48773), (68, 48776), (73, 48794), (79, 48836),

Gene: SirDuracell\_72 Start: 46147, Stop: 46518, Start Num: 18

Candidate Starts for SirDuracell\_72:

(Start: 17 @46141 has 84 MA's), (Start: 18 @46147 has 40 MA's), (30, 46219), (38, 46279), (52, 46378), (72, 46450),

Gene: SophKB\_70 Start: 46533, Stop: 46910, Start Num: 17

Candidate Starts for SophKB\_70:

(Start: 17 @46533 has 84 MA's), (Start: 18 @46539 has 40 MA's), (30, 46611), (38, 46671), (72, 46842),

Gene: SophKB\_77 Start: 48913, Stop: 49248, Start Num: 19

Candidate Starts for SophKB\_77:

(5, 48661), (Start: 16 @48898 has 22 MA's), (Start: 19 @48913 has 104 MA's), (24, 48949), (49, 49090), (57, 49129), (67, 49165), (68, 49168), (73, 49186), (79, 49228),

Gene: Sotrice96\_74 Start: 47536, Stop: 47913, Start Num: 17

Candidate Starts for Sotrice96\_74:

(Start: 17 @47536 has 84 MA's), (Start: 18 @47542 has 40 MA's), (30, 47614), (38, 47674), (72, 47845),

Gene: Sotrice96\_81 Start: 49916, Stop: 50251, Start Num: 19

Candidate Starts for Sotrice96\_81:

(5, 49664), (Start: 16 @49901 has 22 MA's), (Start: 19 @49916 has 104 MA's), (24, 49952), (79, 50231),

Gene: Squint\_131 Start: 70888, Stop: 71241, Start Num: 15

Candidate Starts for Squint\_131:

(Start: 15 @70888 has 36 MA's), (Start: 17 @70897 has 84 MA's), (70, 71167), (79, 71218),

Gene: Stank\_83 Start: 50159, Stop: 50509, Start Num: 16

Candidate Starts for Stank\_83:

(5, 49922), (Start: 16 @50159 has 22 MA's), (Start: 19 @50174 has 104 MA's), (24, 50210), (79, 50489),

Gene: Stank\_76 Start: 47794, Stop: 48171, Start Num: 17

Candidate Starts for Stank\_76:

(Start: 17 @47794 has 84 MA's), (Start: 18 @47800 has 40 MA's), (30, 47872), (38, 47932), (72, 48103),

Gene: Stark\_81 Start: 49718, Stop: 50050, Start Num: 19

Candidate Starts for Stark\_81:

(5, 49466), (Start: 16 @49703 has 22 MA's), (Start: 19 @49718 has 104 MA's), (24, 49754), (79, 50030),

Gene: Stark\_74 Start: 47341, Stop: 47715, Start Num: 17

Candidate Starts for Stark\_74:

(Start: 17 @47341 has 84 MA's), (Start: 18 @47347 has 40 MA's), (30, 47419), (38, 47479), (72, 47647),

Gene: StellaBean\_71 Start: 47107, Stop: 47478, Start Num: 18

Candidate Starts for StellaBean\_71:

(Start: 17 @47101 has 84 MA's), (Start: 18 @47107 has 40 MA's), (30, 47179), (38, 47239), (72, 47410),

Gene: StellaBean\_78 Start: 49481, Stop: 49813, Start Num: 19

Candidate Starts for StellaBean\_78:

(5, 49229), (Start: 16 @49466 has 22 MA's), (Start: 19 @49481 has 104 MA's), (24, 49517), (79, 49793),

Gene: StolenFromERC\_76 Start: 47576, Stop: 47953, Start Num: 17

Candidate Starts for StolenFromERC\_76:

(Start: 17 @47576 has 84 MA's), (Start: 18 @47582 has 40 MA's), (30, 47654), (38, 47714), (72, 47885),

Gene: StolenFromERC\_83 Start: 49956, Stop: 50291, Start Num: 19

Candidate Starts for StolenFromERC\_83:

(5, 49704), (Start: 16 @49941 has 22 MA's), (Start: 19 @49956 has 104 MA's), (24, 49992), (79, 50271),

Gene: Stoor\_51 Start: 35304, Stop: 35735, Start Num: 10

Candidate Starts for Stoor\_51:

(Start: 10 @35304 has 21 MA's), (13, 35352), (32, 35451), (33, 35454), (37, 35490), (46, 35553), (48, 35565), (54, 35598), (76, 35679),

Gene: Stromboli\_51 Start: 35169, Stop: 35606, Start Num: 10

Candidate Starts for Stromboli\_51:

(Start: 10 @35169 has 21 MA's), (13, 35217), (32, 35316), (33, 35319), (37, 35355), (46, 35418), (48, 35430), (54, 35469),

Gene: Superphikiman\_131 Start: 70104, Stop: 70457, Start Num: 15

Candidate Starts for Superphikiman\_131:

(Start: 15 @70104 has 36 MA's), (Start: 17 @70113 has 84 MA's), (70, 70383),

Gene: TBrady12\_76 Start: 47275, Stop: 47652, Start Num: 17

Candidate Starts for TBrady12\_76:

(Start: 17 @47275 has 84 MA's), (Start: 18 @47281 has 40 MA's), (30, 47353), (38, 47413), (72, 47584),

Gene: TBrady12\_83 Start: 49655, Stop: 49990, Start Num: 19

Candidate Starts for TBrady12\_83:

(5, 49403), (Start: 16 @49640 has 22 MA's), (Start: 19 @49655 has 104 MA's), (24, 49691), (79, 49970),

Gene: Tarkin\_72 Start: 47523, Stop: 47900, Start Num: 17

Candidate Starts for Tarkin\_72:

(Start: 17 @47523 has 84 MA's), (Start: 18 @47529 has 40 MA's), (30, 47601), (38, 47661), (72, 47832),

Gene: Tarkin\_79 Start: 49903, Stop: 50238, Start Num: 19

Candidate Starts for Tarkin\_79:

(5, 49651), (Start: 16 @49888 has 22 MA's), (Start: 19 @49903 has 104 MA's), (24, 49939), (49, 50080), (57, 50119), (67, 50155), (68, 50158), (73, 50176), (79, 50218),

Gene: TeardropMSU\_69 Start: 46523, Stop: 46900, Start Num: 17

Candidate Starts for TeardropMSU\_69:

(Start: 17 @46523 has 84 MA's), (Start: 18 @46529 has 40 MA's), (30, 46601), (38, 46661), (72, 46832),

Gene: TeardropMSU\_76 Start: 48888, Stop: 49238, Start Num: 16

Candidate Starts for TeardropMSU\_76:

(5, 48651), (Start: 16 @48888 has 22 MA's), (Start: 19 @48903 has 104 MA's), (24, 48939), (49, 49080), (57, 49119), (67, 49155), (68, 49158), (73, 49176), (79, 49218),

Gene: Teaspoon\_74 Start: 47423, Stop: 47794, Start Num: 18

Candidate Starts for Teaspoon\_74:

(Start: 17 @47417 has 84 MA's), (Start: 18 @47423 has 40 MA's), (30, 47495), (38, 47555), (72, 47726),

Gene: Teaspoon\_81 Start: 49797, Stop: 50132, Start Num: 19

Candidate Starts for Teaspoon\_81:

(5, 49545), (Start: 16 @49782 has 22 MA's), (Start: 19 @49797 has 104 MA's), (24, 49833), (79, 50112),

Gene: Terminus\_76 Start: 48319, Stop: 48687, Start Num: 18

Candidate Starts for Terminus\_76:

(Start: 17 @48313 has 84 MA's), (Start: 18 @48319 has 40 MA's), (30, 48391), (38, 48451), (72, 48619),

Gene: Terminus\_83 Start: 50690, Stop: 51025, Start Num: 19

Candidate Starts for Terminus\_83:

(5, 50438), (Start: 16 @50675 has 22 MA's), (Start: 19 @50690 has 104 MA's), (24, 50726), (79, 51005),

Gene: Thibault\_119 Start: 70544, Stop: 70903, Start Num: 15

Candidate Starts for Thibault\_119:

(11, 70517), (Start: 15 @70544 has 36 MA's), (Start: 17 @70553 has 84 MA's), (39, 70685), (43, 70700), (72, 70835),

Gene: ThreeRngTarjay\_130 Start: 73825, Stop: 74184, Start Num: 15

Candidate Starts for ThreeRngTarjay\_130:

(11, 73798), (Start: 15 @73825 has 36 MA's), (Start: 17 @73834 has 84 MA's), (39, 73966), (43, 73981), (70, 74110), (72, 74116),

Gene: Thresher\_75 Start: 48406, Stop: 48774, Start Num: 18

Candidate Starts for Thresher\_75:

(Start: 17 @48400 has 84 MA's), (Start: 18 @48406 has 40 MA's), (30, 48478), (38, 48538), (72, 48706),

Gene: Thresher\_82 Start: 50777, Stop: 51109, Start Num: 19

Candidate Starts for Thresher\_82:

(5, 50525), (Start: 16 @50762 has 22 MA's), (Start: 19 @50777 has 104 MA's), (24, 50813), (79, 51089),

Gene: Tomaszewski\_68 Start: 46695, Stop: 47063, Start Num: 17

Candidate Starts for Tomaszewski\_68:

(Start: 17 @46695 has 84 MA's), (Start: 18 @46701 has 40 MA's), (44, 46857), (68, 46980), (80, 47046),

Gene: Tomaszewski\_75 Start: 49066, Stop: 49401, Start Num: 19

Candidate Starts for Tomaszewski\_75:

(5, 48814), (Start: 16 @49051 has 22 MA's), (Start: 19 @49066 has 104 MA's), (24, 49102), (79, 49381),

Gene: Toto\_71 Start: 47777, Stop: 48154, Start Num: 17

Candidate Starts for Toto\_71:

(Start: 17 @47777 has 84 MA's), (Start: 18 @47783 has 40 MA's), (30, 47855), (38, 47915), (72, 48086),

Gene: Toto\_78 Start: 50157, Stop: 50489, Start Num: 19

Candidate Starts for Toto\_78:

(5, 49905), (Start: 16 @50142 has 22 MA's), (Start: 19 @50157 has 104 MA's), (24, 50193), (79, 50469),

Gene: Traaww1\_76 Start: 49341, Stop: 49673, Start Num: 19

Candidate Starts for Traaww1\_76:

(5, 49089), (Start: 16 @49326 has 22 MA's), (Start: 19 @49341 has 104 MA's), (24, 49377), (79, 49653),

Gene: Traaww1\_69 Start: 46961, Stop: 47338, Start Num: 17

Candidate Starts for Traaww1\_69:

(Start: 17 @46961 has 84 MA's), (Start: 18 @46967 has 40 MA's), (30, 47039), (38, 47099), (72, 47270),

Gene: Tuco\_81 Start: 50665, Stop: 50997, Start Num: 19

Candidate Starts for Tuco\_81:

(5, 50413), (Start: 16 @50650 has 22 MA's), (Start: 19 @50665 has 104 MA's), (24, 50701), (79, 50977),

Gene: Tuco\_74 Start: 48285, Stop: 48662, Start Num: 17

Candidate Starts for Tuco\_74:

(Start: 17 @48285 has 84 MA's), (Start: 18 @48291 has 40 MA's), (30, 48363), (38, 48423), (72, 48594),

Gene: Ukulele\_68 Start: 46671, Stop: 47045, Start Num: 17

Candidate Starts for Ukulele\_68:

(Start: 17 @46671 has 84 MA's), (Start: 18 @46677 has 40 MA's), (30, 46749), (38, 46809), (72, 46977),

Gene: Ukulele\_75 Start: 49048, Stop: 49383, Start Num: 19

Candidate Starts for Ukulele\_75:

(5, 48796), (Start: 16 @49033 has 22 MA's), (Start: 19 @49048 has 104 MA's), (24, 49084), (79, 49363),

Gene: WalkingDead\_53 Start: 35918, Stop: 36355, Start Num: 10

Candidate Starts for WalkingDead\_53:

(Start: 10 @35918 has 21 MA's), (13, 35966), (32, 36065), (33, 36068), (37, 36104), (46, 36167), (48, 36179), (54, 36218), (76, 36299),

Gene: Wanda\_133 Start: 70960, Stop: 71319, Start Num: 15

Candidate Starts for Wanda\_133:

(11, 70933), (Start: 15 @70960 has 36 MA's), (Start: 17 @70969 has 84 MA's), (39, 71101), (43, 71116), (70, 71245), (72, 71251),

Gene: Wiggin\_75 Start: 47368, Stop: 47739, Start Num: 18

Candidate Starts for Wiggin\_75:

(Start: 17 @47362 has 84 MA's), (Start: 18 @47368 has 40 MA's), (30, 47440), (38, 47500), (72, 47671),

Gene: Wiggin\_82 Start: 49742, Stop: 50074, Start Num: 19

Candidate Starts for Wiggin\_82:

(5, 49490), (Start: 16 @49727 has 22 MA's), (Start: 19 @49742 has 104 MA's), (24, 49778), (79, 50054),

Gene: Willez\_75 Start: 47920, Stop: 48270, Start Num: 16

Candidate Starts for Willez\_75:

(5, 47683), (Start: 16 @47920 has 22 MA's), (Start: 19 @47935 has 104 MA's), (24, 47971), (49, 48112), (57, 48151), (67, 48187), (68, 48190), (73, 48208), (79, 48250),

Gene: Willez\_68 Start: 45564, Stop: 45932, Start Num: 18

Candidate Starts for Willez\_68:

(Start: 17 @45558 has 84 MA's), (Start: 18 @45564 has 40 MA's), (30, 45636), (38, 45696), (72, 45864),

Gene: Xandras\_72 Start: 46773, Stop: 47147, Start Num: 17

Candidate Starts for Xandras\_72:

(Start: 17 @46773 has 84 MA's), (Start: 18 @46779 has 40 MA's), (30, 46851), (38, 46911), (72, 47079),

Gene: Xandras\_79 Start: 49150, Stop: 49482, Start Num: 19

Candidate Starts for Xandras\_79:

(1, 48580), (3, 48697), (5, 48898), (Start: 16 @49135 has 22 MA's), (Start: 19 @49150 has 104 MA's), (24, 49186), (79, 49462),

Gene: YassJohnny\_77 Start: 49090, Stop: 49440, Start Num: 16

Candidate Starts for YassJohnny\_77:

(5, 48853), (Start: 16 @49090 has 22 MA's), (Start: 19 @49105 has 104 MA's), (24, 49141), (49, 49282), (57, 49321), (67, 49357), (68, 49360), (73, 49378), (79, 49420),

Gene: YassJohnny\_70 Start: 46740, Stop: 47102, Start Num: 18

Candidate Starts for YassJohnny\_70:

(Start: 17 @46734 has 84 MA's), (Start: 18 @46740 has 40 MA's), (44, 46896), (68, 47019), (80, 47085),

Gene: Yeet\_128 Start: 73023, Stop: 73382, Start Num: 15

Candidate Starts for Yeet\_128:

(11, 72996), (Start: 15 @73023 has 36 MA's), (Start: 17 @73032 has 84 MA's), (39, 73164), (43, 73179), (70, 73308), (72, 73314),

Gene: Youngblood\_83 Start: 50617, Stop: 50952, Start Num: 19

Candidate Starts for Youngblood\_83:

(5, 50365), (Start: 16 @50602 has 22 MA's), (Start: 19 @50617 has 104 MA's), (24, 50653), (79, 50932),

Gene: Youngblood\_76 Start: 48246, Stop: 48614, Start Num: 18

Candidate Starts for Youngblood\_76:

(Start: 17 @48240 has 84 MA's), (Start: 18 @48246 has 40 MA's), (30, 48318), (38, 48378), (72, 48546),

Gene: Zelink\_129 Start: 73772, Stop: 74131, Start Num: 15

Candidate Starts for Zelink\_129:

(11, 73745), (Start: 15 @73772 has 36 MA's), (Start: 17 @73781 has 84 MA's), (39, 73913), (43, 73928), (70, 74057), (72, 74063),

Gene: Zooman\_323 Start: 180374, Stop: 180850, Start Num: 10

Candidate Starts for Zooman\_323:

(Start: 10 @180374 has 21 MA's), (21, 180458), (25, 180485), (38, 180572), (41, 180590), (53, 180686), (60, 180707), (65, 180722), (71, 180746),

Gene: Zooman\_10 Start: 4723, Stop: 5199, Start Num: 10

Candidate Starts for Zooman\_10:

(Start: 10 @4723 has 21 MA's), (21, 4807), (25, 4834), (38, 4921), (41, 4939), (53, 5035), (60, 5056), (65, 5071), (71, 5095),

Gene: xkcd\_76 Start: 48430, Stop: 48804, Start Num: 17

Candidate Starts for xkcd\_76:

(Start: 17 @48430 has 84 MA's), (Start: 18 @48436 has 40 MA's), (30, 48508), (38, 48568), (72, 48736),

Gene: xkcd\_83 Start: 50807, Stop: 51139, Start Num: 19

Candidate Starts for xkcd\_83:

(Start: 16 @50792 has 22 MA's), (Start: 19 @50807 has 104 MA's), (24, 50843), (79, 51119),