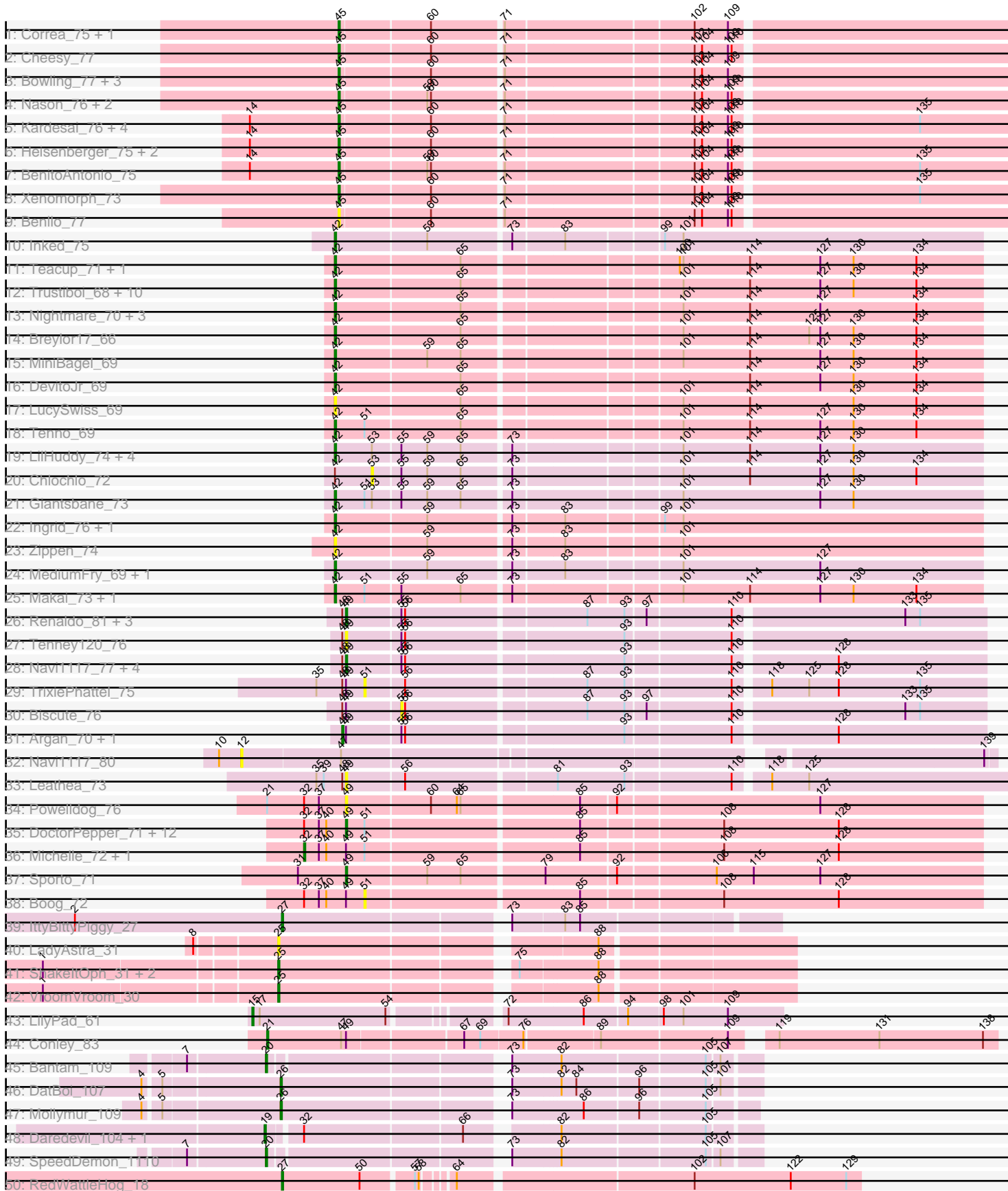
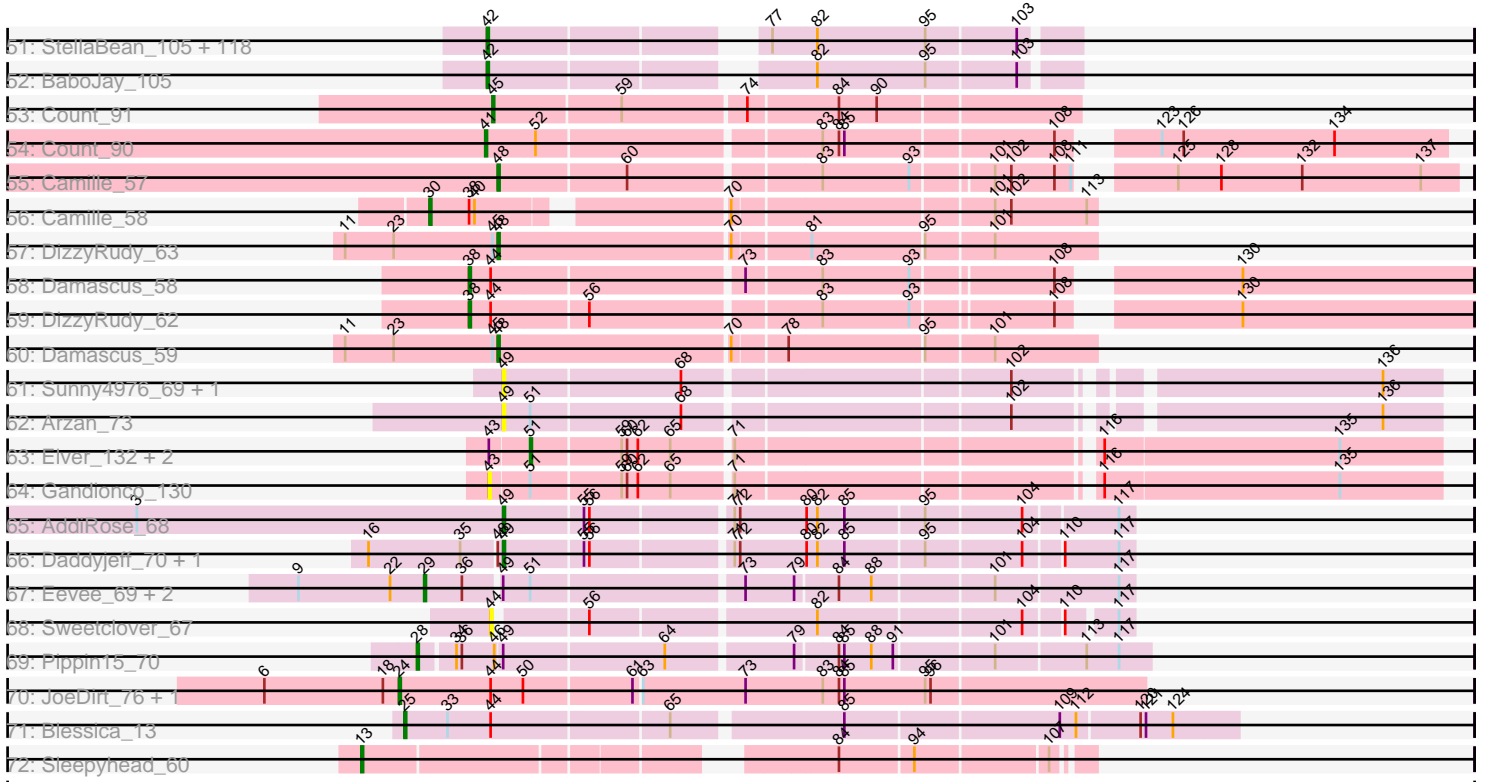


Pham 224252



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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 224252 Report

This analysis was run 03/28/25 on database version 593.

Pham number 224252 has 254 members, 35 are drafts.

Phages represented in each track:

- Track 1 : Correa\_75, Tribby\_80
- Track 2 : Cheesy\_77
- Track 3 : Bowling\_77, Dynamite\_76, NapoleonB\_77, Hankly\_76
- Track 4 : Nason\_76, Elsa\_76, Arcadia\_76
- Track 5 : Kardesai\_76, Mooshroom\_77, Circum\_78, KeaneyLin\_72, GoCrazy\_73
- Track 6 : Heisenberger\_75, JEGGS\_75, Mudcat\_72
- Track 7 : BenitoAntonio\_75
- Track 8 : Xenomorph\_73
- Track 9 : Benllo\_77
- Track 10 : Inked\_75
- Track 11 : Teacup\_71, Acai\_67
- Track 12 : Trustiboi\_68, CastorTray\_73, Gordon\_67, Tatanka\_63, Darby\_67, ElephantMan\_70, Brunswick\_71, Niktson\_70, ScienceWizSam\_71, Issa\_68, CapnMurica\_67
- Track 13 : Nightmare\_70, Nivinsha\_72, AreFloNak\_73, Synopsis\_66
- Track 14 : Breylor17\_66
- Track 15 : MiniBagel\_69
- Track 16 : DevitoJr\_69
- Track 17 : LucySwiss\_69
- Track 18 : Tenno\_69
- Track 19 : LilHuddy\_74, Bouchard\_75, Tokki\_79, Phaby\_75, Shepard\_74
- Track 20 : Chlochlo\_72
- Track 21 : Giantsbane\_73
- Track 22 : Ingrid\_76, Loretta\_72
- Track 23 : Zippen\_74
- Track 24 : MediumFry\_69, Caterpillar\_69
- Track 25 : Makai\_73, Truckee\_71
- Track 26 : Renaldo\_81, BarbieDoll\_77, Lewando\_77, Kinny\_77
- Track 27 : Tenney120\_76
- Track 28 : Navi1117\_77, GantcherGoblin\_71, Uzumaki\_70, Zeina\_76, Phaila\_75
- Track 29 : TrixiePhattel\_75
- Track 30 : Biscute\_76
- Track 31 : Argan\_70, KevinMinion\_72
- Track 32 : Navi1117\_80
- Track 33 : Leathea\_73
- Track 34 : Powelldog\_76

- Track 35 : DoctorPepper\_71, MrAaronian\_72, HerbBucket\_70, Djungelskog\_71, Shiba\_71, Raunak\_73, Sloopyjoe\_72, StarLord\_72, ProfFrink\_72, Linda\_72, Salk\_72, Egad\_72, BronxBay\_72
- Track 36 : Michelle\_72, Stayer\_72
- Track 37 : Sporto\_71
- Track 38 : Boog\_72
- Track 39 : IttyBittyPiggy\_27
- Track 40 : LadyAstra\_31
- Track 41 : ShakeltOph\_31, MiniMommy\_31, JasmineDragon\_30
- Track 42 : VroomVroom\_30
- Track 43 : LilyPad\_61
- Track 44 : Conley\_83
- Track 45 : Bantam\_109
- Track 46 : DatBoi\_107
- Track 47 : Mollymur\_109
- Track 48 : Daredevil\_104, Towmatter\_106
- Track 49 : SpeedDemon\_1110
- Track 50 : RedWattleHog\_18
- Track 51 : StellaBean\_105, Glexan\_105, TBrady12\_109, Bench\_108, JeTaime\_104, Lilpickle\_105, Nimrod\_106, Hopey\_106, Paperbeatsrock\_105, DrDrey\_106, Stark\_106, Moldemort\_108, Kimchi\_110, Emmina\_106, Traaww1\_102, RiverMonster\_105, Contagion\_102, FireRed\_109, Adnama\_110, Cjw1\_106, Goku\_105, Pat3\_103, Misfit\_107, Teaspoon\_106, Inca\_103, Henry\_103, Murica\_109, Phaja\_104, Tuco\_107, Cookies\_103, Kanye\_103, HanKaySha\_106, StolenFromERC\_108, Bruin\_103, Bask21\_106, Czyszczo1\_106, PhatBacter\_109, Buck\_107, Elite2014\_105, Manda\_107, GoldenSpark\_110, Phaux\_108, ChosenOne\_106, Harella\_106, Command613\_108, NelitzaMV\_103, Murphy\_105, Dumbo\_105, Mindy\_105, Gage\_108, Eureka\_105, CrystalP\_105, ChotaBhai\_106, Tarkin\_105, Ukulele\_100, Barbarian\_105, DoctorDiddles\_105, 244\_106, Gator\_104, Hoonter\_109, Easy2Say\_106, Nala\_108, Wigg1n\_108, OrionPax\_104, TeardropMSU\_102, Flypotenuse\_102, ABCat\_103, Saints25\_102, ShamWow\_106, Lilac\_107, Lilizi\_106, Thresher\_107, YassJohnny\_103, xkcd\_109, Sassay\_101, Cactus\_110, Asriel\_104, Sotrice96\_107, Gemini\_111, Goldilocks\_109, SirDuracell\_106, Dusk\_103, Icee\_107, MPhalcon\_107, BadStone\_103, Youngblood\_109, Argent26\_110, Elph10\_105, Terminus\_109, Rakim\_107, Pharsalus\_103, Miniwave\_101, HufflyPuff\_108, Highbury\_102, Filch\_107, ShereKhan\_104, Willez\_101, SophKB\_104, MISSy\_107, Rimmer\_104, BigBubba\_106, Mosby\_102, Stank\_108, Myrale\_106, Marshmallow\_103, MadamMonkfish\_105, Phrux\_102, Kostya\_106, Pumpkin\_107, NoSleep\_106, GooberAzure\_109, Toto\_104, Porky\_104, Tomaszewski\_101, Balomoji\_106, Holt\_111, Simpliphy\_104, Maxxinista\_107, IHOP\_104
- Track 52 : BaboJay\_105
- Track 53 : Count\_91
- Track 54 : Count\_90
- Track 55 : Camille\_57
- Track 56 : Camille\_58
- Track 57 : DizzyRudy\_63
- Track 58 : Damascus\_58
- Track 59 : DizzyRudy\_62
- Track 60 : Damascus\_59
- Track 61 : Sunny4976\_69, Jazzy4900\_70
- Track 62 : Arzan\_73
- Track 63 : Elver\_132, Paella\_134, Qui\_134

- Track 64 : Gandionco\_130
- Track 65 : AddiRose\_68
- Track 66 : Daddyjeff\_70, Serenabean\_69
- Track 67 : Eevee\_69, Yotsuba\_69, JoyLin\_69
- Track 68 : Sweetclover\_67
- Track 69 : Pippin15\_70
- Track 70 : JoeDirt\_76, OhShagHennessy\_74
- Track 71 : Blessica\_13
- Track 72 : Sleepyhead\_60

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

The start number called the most often in the published annotations is 42, it was called in 149 of the 219 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- 244\_106, ABCat\_103, Acai\_67, Adnama\_110, AreFloNak\_73, Argent26\_110, Asriel\_104, BaboJay\_105, BadStone\_103, Balomoji\_106, Barbarian\_105, Bask21\_106, Bench\_108, BigBubba\_106, Bouchard\_75, Breylor17\_66, Bruin\_103, Brunswick\_71, Buck\_107, Cactus\_110, CapnMurica\_67, CastorTray\_73, Caterpillar\_69, ChosenOne\_106, ChotaBhai\_106, Cjw1\_106, Command613\_108, Contagion\_102, Cookies\_103, CrystalP\_105, Czyszczonek\_106, Darby\_67, DevitoJr\_69, DoctorDiddles\_105, DrDrey\_106, Dumbo\_105, Dusk\_103, Easy2Say\_106, ElephantMan\_70, Elite2014\_105, Elph10\_105, Emmina\_106, Eureka\_105, Filch\_107, FireRed\_109, Flypotenuse\_102, Gage\_108, Gator\_104, Gemini\_111, Giantsbane\_73, Glexan\_105, Goku\_105, GoldenSpark\_110, Goldilocks\_109, GooberAzure\_109, Gordon\_67, HanKaySha\_106, Harella\_106, Henry\_103, Highbury\_102, Holt\_111, Hoonter\_109, Hopey\_106, HufflyPuff\_108, IHOP\_104, Icee\_107, Inca\_103, Ingrid\_76, Inked\_75, Issa\_68, JeTaime\_104, Kanye\_103, Kimchi\_110, Kostya\_106, LilHuddy\_74, Lilac\_107, Lilizi\_106, Lilpickle\_105, Loretta\_72, LucySwiss\_69, MISSy\_107, MPhalcon\_107, MadamMonkfish\_105, Makai\_73, Manda\_107, Marshmallow\_103, Maxxinista\_107, MediumFry\_69, Mindy\_105, MiniBagel\_69, Miniwave\_101, Misfit\_107, Moldemort\_108, Mosby\_102, Murica\_109, Murphy\_105, Myrale\_106, Nala\_108, NelitzaMV\_103, Nightmare\_70, Niktson\_70, Nimrod\_106, Nivinsha\_72, NoSleep\_106, OrionPax\_104, Paperbeatsrock\_105, Pat3\_103, Phaby\_75, Phaja\_104, Pharsalus\_103, PhatBacter\_109, Phaux\_108, Phrux\_102, Porky\_104, Pumpkin\_107, Rakim\_107, Rimmer\_104, RiverMonster\_105, Saints25\_102, Sassay\_101, ScienceWizSam\_71, ShamWow\_106, Shepard\_74, ShereKhan\_104, Simpliphy\_104, SirDuracell\_106, SophKB\_104, Sotrice96\_107, Stank\_108, Stark\_106, StellaBean\_105, StolenFromERC\_108, Synopsis\_66, TBrady12\_109, Tarkin\_105, Tatanka\_63, Teacup\_71, TeardropMSU\_102, Teaspoon\_106, Tenno\_69, Terminus\_109, Thresher\_107, Tokki\_79, Tomaszewski\_101, Toto\_104, Traaww1\_102, Truckee\_71, Trustiboi\_68, Tuco\_107, Ukulele\_100, Wiggin\_108, Willez\_101, YassJohnny\_103, Youngblood\_109, Zippen\_74, xkcd\_109,

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

- Chlochlo\_72,

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

- AddiRose\_68, Arcadia\_76, Argan\_70, Arzan\_73, Bantam\_109, BarbieDoll\_77, BenitoAntonio\_75, Benllo\_77, Biscute\_76, Blessica\_13, Boog\_72, Bowling\_77, BronxBay\_72, Camille\_57, Camille\_58, Cheesy\_77, Circum\_78, Conley\_83, Correa\_75, Count\_90, Count\_91, Daddyjeff\_70, Damascus\_58, Damascus\_59, Daredevil\_104, DatBoi\_107, DizzyRudy\_62, DizzyRudy\_63, Djungelskog\_71, DoctorPepper\_71, Dynamite\_76, Eevee\_69, Egad\_72, Elsa\_76, Elver\_132, Gandionco\_130, GantcherGoblin\_71, GoCrazy\_73, Hankly\_76, Heisenberger\_75, HerbBucket\_70, IttyBittyPiggy\_27, JEGGS\_75, JasmineDragon\_30, Jazzy4900\_70, JoeDirt\_76, JoyLin\_69, Kardesai\_76, KeaneyLin\_72, KevinMinion\_72, Kinny\_77, LadyAstra\_31, Leatheia\_73, Lewando\_77, LilyPad\_61, Linda\_72, Michelle\_72, MiniMommy\_31, Mollymur\_109, Mooshroom\_77, MrAaronian\_72, Mudcat\_72, NapoleonB\_77, Nason\_76, Navi1117\_77, Navi1117\_80, OhShagHennessy\_74, Paella\_134, Phaila\_75, Pippin15\_70, Powelldog\_76, ProfFrink\_72, Qui\_134, Raunak\_73, RedWattleHog\_18, Renaldo\_81, Salk\_72, Serenabean\_69, ShakeltOph\_31, Shiba\_71, Sleepyhead\_60, Sloopypjoe\_72, SpeedDemon\_1110, Sporto\_71, StarLord\_72, Stayer\_72, Sunny4976\_69, Sweetclover\_67, Tenney120\_76, Towmatter\_106, Tribby\_80, TrixiePhattel\_75, Uzumaki\_70, VroomVroom\_30, Xenomorph\_73, Yotsuba\_69, Zeina\_76,

### Summary by start number:

#### Start 12:

- Found in 1 of 254 ( 0.4% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Navi1117\_80 (AU6),

#### Start 13:

- Found in 1 of 254 ( 0.4% ) of genes in pham
- Manual Annotations of this start: 1 of 219
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Sleepyhead\_60 (singleton),

#### Start 15:

- Found in 1 of 254 ( 0.4% ) of genes in pham
- Manual Annotations of this start: 1 of 219
- Called 100.0% of time when present
- Phage (with cluster) where this start called: LilyPad\_61 (DG1),

#### Start 19:

- Found in 2 of 254 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 1 of 219
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Daredevil\_104 (DL), Towmatter\_106 (DL),

#### Start 20:

- Found in 2 of 254 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 2 of 219
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bantam\_109 (DL), SpeedDemon\_1110 (DL),

Start 21:

- Found in 2 of 254 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 1 of 219
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Conley\_83 (DJ),

Start 24:

- Found in 2 of 254 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 2 of 219
- Called 100.0% of time when present
- Phage (with cluster) where this start called: JoeDirt\_76 (L1), OhShagHennessy\_74 (L1),

Start 25:

- Found in 6 of 254 ( 2.4% ) of genes in pham
- Manual Annotations of this start: 3 of 219
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Blessica\_13 (O), JasmineDragon\_30 (AZ4), LadyAstra\_31 (AZ4), MiniMommy\_31 (AZ4), ShakeltOph\_31 (AZ4), VroomVroom\_30 (AZ4),

Start 26:

- Found in 2 of 254 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 2 of 219
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DatBoi\_107 (DL), Mollymur\_109 (DL),

Start 27:

- Found in 2 of 254 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 2 of 219
- Called 100.0% of time when present
- Phage (with cluster) where this start called: IttyBittyPiggy\_27 (AZ1), RedWattleHog\_18 (DX),

Start 28:

- Found in 1 of 254 ( 0.4% ) of genes in pham
- Manual Annotations of this start: 1 of 219
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Pippin15\_70 (JA),

Start 29:

- Found in 3 of 254 ( 1.2% ) of genes in pham
- Manual Annotations of this start: 3 of 219
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Eevee\_69 (JA), JoyLin\_69 (JA), Yotsuba\_69 (JA),

Start 30:

- Found in 1 of 254 ( 0.4% ) of genes in pham
- Manual Annotations of this start: 1 of 219
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Camille\_58 (EL),

Start 32:

- Found in 19 of 254 ( 7.5% ) of genes in pham
- Manual Annotations of this start: 2 of 219
- Called 10.5% of time when present
- Phage (with cluster) where this start called: Michelle\_72 (AW), Stayer\_72 (AW),

Start 38:

- Found in 3 of 254 ( 1.2% ) of genes in pham
- Manual Annotations of this start: 2 of 219
- Called 66.7% of time when present
- Phage (with cluster) where this start called: Damascus\_58 (EL), DizzyRudy\_62 (EL),

Start 41:

- Found in 1 of 254 ( 0.4% ) of genes in pham
- Manual Annotations of this start: 1 of 219
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Count\_90 (EL),

Start 42:

- Found in 157 of 254 ( 61.8% ) of genes in pham
- Manual Annotations of this start: 149 of 219
- Called 99.4% of time when present
- Phage (with cluster) where this start called: 244\_106 (E), ABCat\_103 (E), Acai\_67 (AU1), Adnama\_110 (E), AreFloNak\_73 (AU1), Argent26\_110 (E), Asriel\_104 (E), BaboJay\_105 (E), BadStone\_103 (E), Balomoji\_106 (E), Barbarian\_105 (E), Bask21\_106 (E), Bench\_108 (E), BigBubba\_106 (E), Bouchard\_75 (AU2), Breylor17\_66 (AU1), Bruin\_103 (E), Brunswick\_71 (AU1), Buck\_107 (E), Cactus\_110 (E), CapnMurica\_67 (AU1), CastorTray\_73 (AU1), Caterpillar\_69 (AU4), ChosenOne\_106 (E), ChotaBhai\_106 (E), Cjw1\_106 (E), Command613\_108 (E), Contagion\_102 (E), Cookies\_103 (E), CrystalP\_105 (E), Czyszczone1\_106 (E), Darby\_67 (AU1), DevitoJr\_69 (AU1), DoctorDiddles\_105 (E), DrDrey\_106 (E), Dumbo\_105 (E), Dusk\_103 (E), Easy2Say\_106 (E), ElephantMan\_70 (AU1), Elite2014\_105 (E), Elph10\_105 (E), Emmina\_106 (E), Eureka\_105 (E), Filch\_107 (E), FireRed\_109 (E), Flypotenuse\_102 (E), Gage\_108 (E), Gator\_104 (E), Gemini\_111 (E), Giantsbane\_73 (AU2), Glexan\_105 (E), Goku\_105 (E), GoldenSpark\_110 (E), Goldilocks\_109 (E), GooberAzure\_109 (E), Gordon\_67 (AU1), HanKaySha\_106 (E), Harella\_106 (E), Henry\_103 (E), Highbury\_102 (E), Holt\_111 (E), Hoonter\_109 (E), Hopey\_106 (E), HufflyPuff\_108 (E), IHOP\_104 (E), Icee\_107 (E), Inca\_103 (E), Ingrid\_76 (AU3), Inked\_75 (AU), Issa\_68 (AU1), JeTaime\_104 (E), Kanye\_103 (E), Kimchi\_110 (E), Kostya\_106 (E), LilHuddy\_74 (AU2), Lilac\_107 (E), Lilizi\_106 (E), Lilpickle\_105 (E), Loretta\_72 (AU3), LucySwiss\_69 (AU1), MISSy\_107 (E), MPhalcon\_107 (E), MadamMonkfish\_105 (E), Makai\_73 (AU5), Manda\_107 (E), Marshmallow\_103 (E), Maxxinsta\_107 (E), MediumFry\_69 (AU4), Mindy\_105 (E), MiniBagel\_69 (AU1), Miniwave\_101 (E), Misfit\_107 (E), Moldemort\_108 (E), Mosby\_102 (E), Murica\_109 (E), Murphy\_105 (E), Myrale\_106 (E), Nala\_108 (E), NelitzaMV\_103 (E), Nightmare\_70 (AU1), Niktson\_70 (AU1), Nimrod\_106 (E), Nivinsha\_72 (AU1), NoSleep\_106 (E), OrionPax\_104 (E), Paperbeatsrock\_105 (E), Pat3\_103 (E), Phaby\_75 (AU2), Phaja\_104 (E), Pharsalus\_103 (E), PhatBacter\_109 (E), Phaux\_108 (E), Phrux\_102 (E), Porky\_104 (E), Pumpkin\_107 (E), Rakim\_107 (E), Rimmer\_104 (E), RiverMonster\_105 (E), Saints25\_102 (E), Sassay\_101 (E), ScienceWizSam\_71 (AU1), ShamWow\_106 (E), Shepard\_74 (AU2), ShereKhan\_104 (E), Simpliphy\_104 (E), SirDuracell\_106 (E), SophKB\_104 (E), Sotrice96\_107 (E), Stank\_108 (E), Stark\_106 (E), StellaBean\_105 (E), StolenFromERC\_108 (E),



Synopsis\_66 (AU1), TBrady12\_109 (E), Tarkin\_105 (E), Tatanka\_63 (AU1), Teacup\_71 (AU1), TeardropMSU\_102 (E), Teaspoon\_106 (E), Tenno\_69 (AU1), Terminus\_109 (E), Thresher\_107 (E), Tokki\_79 (AU2), Tomaszewski\_101 (E), Toto\_104 (E), Traaww1\_102 (E), Truckee\_71 (AU5), Trustiboi\_68 (AU1), Tuco\_107 (E), Ukulele\_100 (E), Wiggin\_108 (E), Willez\_101 (E), YassJohnny\_103 (E), Youngblood\_109 (E), Zippen\_74 (AU3), xkcd\_109 (E),

#### Start 43:

- Found in 4 of 254 ( 1.6% ) of genes in pham
- No Manual Annotations of this start.
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Gandionco\_130 (FK),

#### Start 44:

- Found in 6 of 254 ( 2.4% ) of genes in pham
- No Manual Annotations of this start.
- Called 16.7% of time when present
- Phage (with cluster) where this start called: Sweetclover\_67 (JA),

#### Start 45:

- Found in 24 of 254 ( 9.4% ) of genes in pham
- Manual Annotations of this start: 20 of 219
- Called 91.7% of time when present
- Phage (with cluster) where this start called: Arcadia\_76 (AM), BenitoAntonio\_75 (AM), Benllo\_77 (AM), Bowling\_77 (AM), Cheesy\_77 (AM), Circum\_78 (AM), Correa\_75 (AM), Count\_91 (EL), Dynamite\_76 (AM), Elsa\_76 (AM), GoCrazy\_73 (AM), Hankly\_76 (AM), Heisenberger\_75 (AM), JEGGS\_75 (AM), Kardesai\_76 (AM), KeaneyLin\_72 (AM), Mooshroom\_77 (AM), Mudcat\_72 (AM), NapoleonB\_77 (AM), Nason\_76 (AM), Tribby\_80 (AM), Xenomorph\_73 (AM),

#### Start 48:

- Found in 20 of 254 ( 7.9% ) of genes in pham
- Manual Annotations of this start: 4 of 219
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Argan\_70 (AU6), Camille\_57 (EL), Damascus\_59 (EL), DizzyRudy\_63 (EL), KevinMinion\_72 (AU6),

#### Start 49:

- Found in 44 of 254 ( 17.3% ) of genes in pham
- Manual Annotations of this start: 19 of 219
- Called 72.7% of time when present
- Phage (with cluster) where this start called: AddiRose\_68 (JA), Arzan\_73 (FI), BarbieDoll\_77 (AU6), BronxBay\_72 (AW), Daddyjeff\_70 (JA), Djungelskog\_71 (AW), DoctorPepper\_71 (AW), Egad\_72 (AW), GantcherGoblin\_71 (AU6), HerbBucket\_70 (AW), Jazzy4900\_70 (FI), Kinny\_77 (AU6), Leathe\_73 (AU6), Lewando\_77 (AU6), Linda\_72 (AW), MrAaronian\_72 (AW), Navi1117\_77 (AU6), Phaila\_75 (AU6), Powelldog\_76 (AW), ProfFrink\_72 (AW), Raunak\_73 (AW), Renaldo\_81 (AU6), Salk\_72 (AW), Serenabean\_69 (JA), Shiba\_71 (AW), Sloopyjoe\_72 (AW), Sporto\_71 (AW), StarLord\_72 (AW), Sunny4976\_69 (FI), Tenney120\_76 (AU6), Uzumaki\_70 (AU6), Zeina\_76 (AU6),

#### Start 51:

- Found in 29 of 254 ( 11.4% ) of genes in pham

- Manual Annotations of this start: 2 of 219
- Called 17.2% of time when present
- Phage (with cluster) where this start called: Boog\_72 (AW), Elver\_132 (FK), Paella\_134 (FK), Qui\_134 (FK), TrixiePhattel\_75 (AU6),

Start 53:

- Found in 7 of 254 ( 2.8% ) of genes in pham
- No Manual Annotations of this start.
- Called 14.3% of time when present
- Phage (with cluster) where this start called: Chlochlo\_72 (AU2),

Start 55:

- Found in 25 of 254 ( 9.8% ) of genes in pham
- No Manual Annotations of this start.
- Called 4.0% of time when present
- Phage (with cluster) where this start called: Biscute\_76 (AU6),

### **Summary by clusters:**

There are 23 clusters represented in this pham: DL, DJ, singleton, DX, FI, FK, JA, AU1, AU3, AU2, AU5, AU4, AU6, EL, E, AM, O, DG1, AU, AW, L1, AZ1, AZ4,

Info for manual annotations of cluster AM:

- Start number 45 was manually annotated 19 times for cluster AM.

Info for manual annotations of cluster AU:

- Start number 42 was manually annotated 1 time for cluster AU.

Info for manual annotations of cluster AU1:

- Start number 42 was manually annotated 17 times for cluster AU1.

Info for manual annotations of cluster AU2:

- Start number 42 was manually annotated 5 times for cluster AU2.

Info for manual annotations of cluster AU3:

- Start number 42 was manually annotated 2 times for cluster AU3.

Info for manual annotations of cluster AU4:

- Start number 42 was manually annotated 2 times for cluster AU4.

Info for manual annotations of cluster AU5:

- Start number 42 was manually annotated 2 times for cluster AU5.

Info for manual annotations of cluster AU6:

- Start number 48 was manually annotated 1 time for cluster AU6.
- Start number 49 was manually annotated 4 times for cluster AU6.

Info for manual annotations of cluster AW:

- Start number 32 was manually annotated 2 times for cluster AW.
- Start number 49 was manually annotated 12 times for cluster AW.

Info for manual annotations of cluster AZ1:

- Start number 27 was manually annotated 1 time for cluster AZ1.

Info for manual annotations of cluster AZ4:

- Start number 25 was manually annotated 2 times for cluster AZ4.

Info for manual annotations of cluster DG1:

- Start number 15 was manually annotated 1 time for cluster DG1.

Info for manual annotations of cluster DJ:

- Start number 21 was manually annotated 1 time for cluster DJ.

Info for manual annotations of cluster DL:

- Start number 19 was manually annotated 1 time for cluster DL.
- Start number 20 was manually annotated 2 times for cluster DL.
- Start number 26 was manually annotated 2 times for cluster DL.

Info for manual annotations of cluster DX:

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

Info for manual annotations of cluster E:

- Start number 42 was manually annotated 120 times for cluster E.

Info for manual annotations of cluster EL:

- Start number 30 was manually annotated 1 time for cluster EL.
- Start number 38 was manually annotated 2 times for cluster EL.
- Start number 41 was manually annotated 1 time for cluster EL.
- Start number 45 was manually annotated 1 time for cluster EL.
- Start number 48 was manually annotated 3 times for cluster EL.

Info for manual annotations of cluster FK:

- Start number 51 was manually annotated 2 times for cluster FK.

Info for manual annotations of cluster JA:

- Start number 28 was manually annotated 1 time for cluster JA.
- Start number 29 was manually annotated 3 times for cluster JA.
- Start number 49 was manually annotated 3 times for cluster JA.

Info for manual annotations of cluster L1:

- Start number 24 was manually annotated 2 times for cluster L1.

Info for manual annotations of cluster O:

- Start number 25 was manually annotated 1 time for cluster O.

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

Gene: 244\_106 Start: 61588, Stop: 61878, Start Num: 42

Candidate Starts for 244\_106:

(Start: 42 @61588 has 149 MA's), (77, 61717), (82, 61741), (95, 61801), (103, 61849),

Gene: ABCat\_103 Start: 62792, Stop: 63082, Start Num: 42

Candidate Starts for ABCat\_103:

(Start: 42 @62792 has 149 MA's), (77, 62921), (82, 62945), (95, 63005), (103, 63053),

Gene: Acai\_67 Start: 46762, Stop: 47265, Start Num: 42

Candidate Starts for Acai\_67:

(Start: 42 @46762 has 149 MA's), (65, 46861), (100, 47020), (101, 47023), (114, 47077), (127, 47134), (130, 47161), (134, 47212),

Gene: AddiRose\_68 Start: 43648, Stop: 43974, Start Num: 49

Candidate Starts for AddiRose\_68:

(3, 43444), (Start: 49 @43648 has 19 MA's), (55, 43690), (56, 43693), (71, 43765), (72, 43768), (80, 43804), (82, 43810), (85, 43825), (95, 43867), (104, 43918), (117, 43966),

Gene: Adnama\_110 Start: 62081, Stop: 62371, Start Num: 42

Candidate Starts for Adnama\_110:

(Start: 42 @62081 has 149 MA's), (77, 62210), (82, 62234), (95, 62294), (103, 62342),

Gene: Arcadia\_76 Start: 45700, Stop: 46212, Start Num: 45

Candidate Starts for Arcadia\_76:

(Start: 45 @45700 has 20 MA's), (59, 45766), (60, 45769), (71, 45823), (102, 45967), (104, 45973), (109, 45994), (110, 45997),

Gene: AreFloNak\_73 Start: 46808, Stop: 47311, Start Num: 42

Candidate Starts for AreFloNak\_73:

(Start: 42 @46808 has 149 MA's), (65, 46907), (101, 47069), (114, 47123), (127, 47180), (134, 47258),

Gene: Argan\_70 Start: 44513, Stop: 45007, Start Num: 48

Candidate Starts for Argan\_70:

(Start: 48 @44513 has 4 MA's), (Start: 49 @44516 has 19 MA's), (55, 44558), (56, 44561), (93, 44729), (110, 44810), (128, 44888),

Gene: Argent26\_110 Start: 62005, Stop: 62295, Start Num: 42

Candidate Starts for Argent26\_110:

(Start: 42 @62005 has 149 MA's), (77, 62134), (82, 62158), (95, 62218), (103, 62266),

Gene: Arzan\_73 Start: 46217, Stop: 46693, Start Num: 49

Candidate Starts for Arzan\_73:

(Start: 49 @46217 has 19 MA's), (Start: 51 @46232 has 2 MA's), (68, 46313), (102, 46481), (136, 46661),

Gene: Asriel\_104 Start: 60418, Stop: 60708, Start Num: 42

Candidate Starts for Asriel\_104:

(Start: 42 @60418 has 149 MA's), (77, 60547), (82, 60571), (95, 60631), (103, 60679),

Gene: BaboJay\_105 Start: 62761, Stop: 63051, Start Num: 42

Candidate Starts for BaboJay\_105:

(Start: 42 @62761 has 149 MA's), (82, 62914), (95, 62974), (103, 63022),

Gene: BadStone\_103 Start: 62340, Stop: 62630, Start Num: 42

Candidate Starts for BadStone\_103:

(Start: 42 @62340 has 149 MA's), (77, 62469), (82, 62493), (95, 62553), (103, 62601),

Gene: Balomoji\_106 Start: 62201, Stop: 62491, Start Num: 42

Candidate Starts for Balomoji\_106:

(Start: 42 @62201 has 149 MA's), (77, 62330), (82, 62354), (95, 62414), (103, 62462),

Gene: Bantam\_109 Start: 70339, Stop: 70695, Start Num: 20

Candidate Starts for Bantam\_109:

(7, 70279), (Start: 20 @70339 has 2 MA's), (73, 70510), (82, 70546), (105, 70657), (107, 70666),

Gene: Barbarian\_105 Start: 60418, Stop: 60708, Start Num: 42

Candidate Starts for Barbarian\_105:

(Start: 42 @60418 has 149 MA's), (77, 60547), (82, 60571), (95, 60631), (103, 60679),

Gene: BarbieDoll\_77 Start: 46222, Stop: 46713, Start Num: 49

Candidate Starts for BarbieDoll\_77:

(Start: 48 @46219 has 4 MA's), (Start: 49 @46222 has 19 MA's), (55, 46264), (56, 46267), (87, 46405), (93, 46435), (97, 46450), (110, 46516), (133, 46648), (135, 46660),

Gene: Bask21\_106 Start: 61036, Stop: 61323, Start Num: 42

Candidate Starts for Bask21\_106:

(Start: 42 @61036 has 149 MA's), (77, 61165), (82, 61189), (95, 61249), (103, 61297),

Gene: Bench\_108 Start: 62762, Stop: 63052, Start Num: 42

Candidate Starts for Bench\_108:

(Start: 42 @62762 has 149 MA's), (77, 62891), (82, 62915), (95, 62975), (103, 63023),

Gene: BenitoAntonio\_75 Start: 45340, Stop: 45852, Start Num: 45

Candidate Starts for BenitoAntonio\_75:

(14, 45268), (Start: 45 @45340 has 20 MA's), (59, 45406), (60, 45409), (71, 45463), (102, 45607), (104, 45613), (109, 45634), (110, 45637), (135, 45781),

Gene: Benllo\_77 Start: 46018, Stop: 46530, Start Num: 45

Candidate Starts for Benllo\_77:

(Start: 45 @46018 has 20 MA's), (60, 46087), (71, 46141), (102, 46285), (104, 46291), (109, 46312), (110, 46315),

Gene: BigBubba\_106 Start: 61114, Stop: 61404, Start Num: 42

Candidate Starts for BigBubba\_106:

(Start: 42 @61114 has 149 MA's), (77, 61243), (82, 61267), (95, 61327), (103, 61375),

Gene: Biscute\_76 Start: 45916, Stop: 46365, Start Num: 55

Candidate Starts for Biscute\_76:

(Start: 48 @45871 has 4 MA's), (Start: 49 @45874 has 19 MA's), (55, 45916), (56, 45919), (87, 46057), (93, 46087), (97, 46102), (110, 46168), (133, 46300), (135, 46312),

Gene: Blessica\_13 Start: 5453, Stop: 5890, Start Num: 25

Candidate Starts for Blessica\_13:

(Start: 25 @5453 has 3 MA's), (33, 5477), (44, 5501), (65, 5594), (85, 5681), (109, 5795), (112, 5804), (120, 5837), (121, 5840), (124, 5855),

Gene: Boog\_72 Start: 44948, Stop: 45430, Start Num: 51

Candidate Starts for Boog\_72:

(Start: 32 @44900 has 2 MA's), (37, 44912), (40, 44918), (Start: 49 @44933 has 19 MA's), (Start: 51 @44948 has 2 MA's), (85, 45113), (108, 45221), (128, 45314),

Gene: Bouchard\_75 Start: 47398, Stop: 47901, Start Num: 42

Candidate Starts for Bouchard\_75:

(Start: 42 @47398 has 149 MA's), (53, 47428), (55, 47449), (59, 47470), (65, 47497), (73, 47533), (101, 47659), (114, 47713), (127, 47770), (130, 47797),

Gene: Bowling\_77 Start: 46295, Stop: 46807, Start Num: 45

Candidate Starts for Bowling\_77:

(Start: 45 @46295 has 20 MA's), (60, 46364), (71, 46418), (102, 46562), (104, 46568), (109, 46589),

Gene: Breylor17\_66 Start: 47201, Stop: 47704, Start Num: 42

Candidate Starts for Breylor17\_66:

(Start: 42 @47201 has 149 MA's), (65, 47300), (101, 47462), (114, 47516), (125, 47564), (127, 47573), (130, 47600), (134, 47651),

Gene: BronxBay\_72 Start: 45205, Stop: 45702, Start Num: 49

Candidate Starts for BronxBay\_72:

(Start: 32 @45172 has 2 MA's), (37, 45184), (40, 45190), (Start: 49 @45205 has 19 MA's), (Start: 51 @45220 has 2 MA's), (85, 45385), (108, 45493), (128, 45586),

Gene: Bruin\_103 Start: 61446, Stop: 61736, Start Num: 42

Candidate Starts for Bruin\_103:

(Start: 42 @61446 has 149 MA's), (77, 61575), (82, 61599), (95, 61659), (103, 61707),

Gene: Brunswick\_71 Start: 46642, Stop: 47145, Start Num: 42

Candidate Starts for Brunswick\_71:

(Start: 42 @46642 has 149 MA's), (65, 46741), (101, 46903), (114, 46957), (127, 47014), (130, 47041), (134, 47092),

Gene: Buck\_107 Start: 63262, Stop: 63552, Start Num: 42

Candidate Starts for Buck\_107:

(Start: 42 @63262 has 149 MA's), (77, 63391), (82, 63415), (95, 63475), (103, 63523),

Gene: Cactus\_110 Start: 61700, Stop: 61990, Start Num: 42

Candidate Starts for Cactus\_110:

(Start: 42 @61700 has 149 MA's), (77, 61829), (82, 61853), (95, 61913), (103, 61961),

Gene: Camille\_57 Start: 40747, Stop: 41235, Start Num: 48

Candidate Starts for Camille\_57:

(Start: 48 @40747 has 4 MA's), (60, 40816), (83, 40915), (93, 40963), (101, 41002), (102, 41011), (108, 41035), (111, 41044), (125, 41080), (128, 41104), (132, 41149), (137, 41215),

Gene: Camille\_58 Start: 41232, Stop: 41567, Start Num: 30

Candidate Starts for Camille\_58:

(Start: 30 @41232 has 1 MA's), (Start: 38 @41253 has 2 MA's), (40, 41256), (70, 41376), (101, 41511), (102, 41520), (113, 41562),

Gene: CapnMurica\_67 Start: 47359, Stop: 47862, Start Num: 42

Candidate Starts for CapnMurica\_67:

(Start: 42 @47359 has 149 MA's), (65, 47458), (101, 47620), (114, 47674), (127, 47731), (130, 47758), (134, 47809),

Gene: CastorTray\_73 Start: 47393, Stop: 47896, Start Num: 42

Candidate Starts for CastorTray\_73:

(Start: 42 @47393 has 149 MA's), (65, 47492), (101, 47654), (114, 47708), (127, 47765), (130, 47792), (134, 47843),

Gene: Caterpillar\_69 Start: 46228, Stop: 46731, Start Num: 42

Candidate Starts for Caterpillar\_69:

(Start: 42 @46228 has 149 MA's), (59, 46300), (73, 46363), (83, 46402), (101, 46489), (127, 46600),

Gene: Cheesy\_77 Start: 45492, Stop: 46004, Start Num: 45

Candidate Starts for Cheesy\_77:

(Start: 45 @45492 has 20 MA's), (60, 45561), (71, 45615), (102, 45759), (104, 45765), (109, 45786), (110, 45789),

Gene: Chlochlo\_72 Start: 46955, Stop: 47428, Start Num: 53

Candidate Starts for Chlochlo\_72:

(Start: 42 @46925 has 149 MA's), (53, 46955), (55, 46976), (59, 46997), (65, 47024), (73, 47060), (101, 47186), (114, 47240), (127, 47297), (130, 47324), (134, 47375),

Gene: ChosenOne\_106 Start: 61646, Stop: 61936, Start Num: 42

Candidate Starts for ChosenOne\_106:

(Start: 42 @61646 has 149 MA's), (77, 61775), (82, 61799), (95, 61859), (103, 61907),

Gene: ChotaBhai\_106 Start: 62098, Stop: 62385, Start Num: 42

Candidate Starts for ChotaBhai\_106:

(Start: 42 @62098 has 149 MA's), (77, 62227), (82, 62251), (95, 62311), (103, 62359),

Gene: Circum\_78 Start: 46108, Stop: 46620, Start Num: 45

Candidate Starts for Circum\_78:

(14, 46036), (Start: 45 @46108 has 20 MA's), (60, 46177), (71, 46231), (102, 46375), (104, 46381), (109, 46402), (110, 46405), (135, 46549),

Gene: Cjw1\_106 Start: 63455, Stop: 63745, Start Num: 42

Candidate Starts for Cjw1\_106:

(Start: 42 @63455 has 149 MA's), (77, 63584), (82, 63608), (95, 63668), (103, 63716),

Gene: Command613\_108 Start: 62194, Stop: 62484, Start Num: 42

Candidate Starts for Command613\_108:

(Start: 42 @62194 has 149 MA's), (77, 62323), (82, 62347), (95, 62407), (103, 62455),

Gene: Conley\_83 Start: 53384, Stop: 53935, Start Num: 21

Candidate Starts for Conley\_83:

(Start: 21 @53384 has 1 MA's), (47, 53444), (Start: 49 @53447 has 19 MA's), (67, 53534), (69, 53546), (76, 53579), (89, 53636), (109, 53735), (119, 53759), (131, 53840), (138, 53924),

Gene: Contagion\_102 Start: 61808, Stop: 62098, Start Num: 42

Candidate Starts for Contagion\_102:

(Start: 42 @61808 has 149 MA's), (77, 61937), (82, 61961), (95, 62021), (103, 62069),

Gene: Cookies\_103 Start: 61964, Stop: 62251, Start Num: 42

Candidate Starts for Cookies\_103:

(Start: 42 @61964 has 149 MA's), (77, 62093), (82, 62117), (95, 62177), (103, 62225),

Gene: Correa\_75 Start: 45066, Stop: 45578, Start Num: 45

Candidate Starts for Correa\_75:

(Start: 45 @45066 has 20 MA's), (60, 45135), (71, 45189), (102, 45333), (109, 45360),

Gene: Count\_91 Start: 59562, Stop: 59873, Start Num: 45

Candidate Starts for Count\_91:

(Start: 45 @59562 has 20 MA's), (59, 59631), (74, 59697), (84, 59745), (90, 59766),

Gene: Count\_90 Start: 59071, Stop: 59562, Start Num: 41

Candidate Starts for Count\_90:

(Start: 41 @59071 has 1 MA's), (52, 59098), (83, 59245), (84, 59254), (85, 59257), (108, 59368), (123, 59404), (126, 59416), (134, 59500),

Gene: CrystalP\_105 Start: 62698, Stop: 62988, Start Num: 42

Candidate Starts for CrystalP\_105:

(Start: 42 @62698 has 149 MA's), (77, 62827), (82, 62851), (95, 62911), (103, 62959),

Gene: Czyszczone1\_106 Start: 61801, Stop: 62091, Start Num: 42

Candidate Starts for Czyszczone1\_106:

(Start: 42 @61801 has 149 MA's), (77, 61930), (82, 61954), (95, 62014), (103, 62062),

Gene: Daddyjeff\_70 Start: 44061, Stop: 44387, Start Num: 49

Candidate Starts for Daddyjeff\_70:

(16, 43989), (35, 44040), (Start: 48 @44058 has 4 MA's), (Start: 49 @44061 has 19 MA's), (55, 44103), (56, 44106), (71, 44178), (72, 44181), (80, 44217), (82, 44223), (85, 44238), (95, 44280), (104, 44331), (110, 44349), (117, 44379),

Gene: Damascus\_58 Start: 42170, Stop: 42682, Start Num: 38

Candidate Starts for Damascus\_58:

(Start: 38 @42170 has 2 MA's), (44, 42182), (73, 42314), (83, 42353), (93, 42401), (108, 42473), (130, 42554),

Gene: Damascus\_59 Start: 42669, Stop: 42986, Start Num: 48

Candidate Starts for Damascus\_59:

(11, 42585), (23, 42612), (Start: 45 @42666 has 20 MA's), (Start: 48 @42669 has 4 MA's), (70, 42795), (78, 42822), (95, 42894), (101, 42930),

Gene: Darby\_67 Start: 46386, Stop: 46889, Start Num: 42

Candidate Starts for Darby\_67:

(Start: 42 @46386 has 149 MA's), (65, 46485), (101, 46647), (114, 46701), (127, 46758), (130, 46785), (134, 46836),

Gene: Daredevil\_104 Start: 67182, Stop: 67538, Start Num: 19

Candidate Starts for Daredevil\_104:

(Start: 19 @67182 has 1 MA's), (Start: 32 @67206 has 2 MA's), (66, 67329), (82, 67389), (105, 67500),

Gene: DatBoi\_107 Start: 69816, Stop: 70166, Start Num: 26

Candidate Starts for DatBoi\_107:

(4, 69714), (5, 69726), (Start: 26 @69816 has 2 MA's), (73, 69981), (82, 70017), (84, 70029), (96, 70077), (105, 70128), (107, 70137),

Gene: DevitoJr\_69 Start: 46771, Stop: 47274, Start Num: 42

Candidate Starts for DevitoJr\_69:

(Start: 42 @46771 has 149 MA's), (65, 46870), (114, 47086), (127, 47143), (130, 47170), (134, 47221),



Gene: DizzyRudy\_63 Start: 42556, Stop: 42873, Start Num: 48  
Candidate Starts for DizzyRudy\_63:  
(11, 42472), (23, 42499), (Start: 45 @42553 has 20 MA's), (Start: 48 @42556 has 4 MA's), (70, 42682),  
(81, 42721), (95, 42781), (101, 42817),

Gene: DizzyRudy\_62 Start: 42057, Stop: 42569, Start Num: 38  
Candidate Starts for DizzyRudy\_62:  
(Start: 38 @42057 has 2 MA's), (44, 42069), (56, 42120), (83, 42240), (93, 42288), (108, 42360), (130,  
42441),

Gene: Djungelskog\_71 Start: 45207, Stop: 45704, Start Num: 49  
Candidate Starts for Djungelskog\_71:  
(Start: 32 @45174 has 2 MA's), (37, 45186), (40, 45192), (Start: 49 @45207 has 19 MA's), (Start: 51  
@45222 has 2 MA's), (85, 45387), (108, 45495), (128, 45588),

Gene: DoctorDiddles\_105 Start: 61466, Stop: 61753, Start Num: 42  
Candidate Starts for DoctorDiddles\_105:  
(Start: 42 @61466 has 149 MA's), (77, 61595), (82, 61619), (95, 61679), (103, 61727),

Gene: DoctorPepper\_71 Start: 44909, Stop: 45406, Start Num: 49  
Candidate Starts for DoctorPepper\_71:  
(Start: 32 @44876 has 2 MA's), (37, 44888), (40, 44894), (Start: 49 @44909 has 19 MA's), (Start: 51  
@44924 has 2 MA's), (85, 45089), (108, 45197), (128, 45290),

Gene: DrDrey\_106 Start: 63478, Stop: 63768, Start Num: 42  
Candidate Starts for DrDrey\_106:  
(Start: 42 @63478 has 149 MA's), (77, 63607), (82, 63631), (95, 63691), (103, 63739),

Gene: Dumbo\_105 Start: 61838, Stop: 62128, Start Num: 42  
Candidate Starts for Dumbo\_105:  
(Start: 42 @61838 has 149 MA's), (77, 61967), (82, 61991), (95, 62051), (103, 62099),

Gene: Dusk\_103 Start: 62000, Stop: 62290, Start Num: 42  
Candidate Starts for Dusk\_103:  
(Start: 42 @62000 has 149 MA's), (77, 62129), (82, 62153), (95, 62213), (103, 62261),

Gene: Dynamite\_76 Start: 45552, Stop: 46064, Start Num: 45  
Candidate Starts for Dynamite\_76:  
(Start: 45 @45552 has 20 MA's), (60, 45621), (71, 45675), (102, 45819), (104, 45825), (109, 45846),

Gene: Easy2Say\_106 Start: 62472, Stop: 62762, Start Num: 42  
Candidate Starts for Easy2Say\_106:  
(Start: 42 @62472 has 149 MA's), (77, 62601), (82, 62625), (95, 62685), (103, 62733),

Gene: Eevee\_69 Start: 47508, Stop: 47876, Start Num: 29  
Candidate Starts for Eevee\_69:  
(9, 47439), (22, 47490), (Start: 29 @47508 has 3 MA's), (36, 47529), (Start: 49 @47547 has 19 MA's),  
(Start: 51 @47562 has 2 MA's), (73, 47673), (79, 47700), (84, 47721), (88, 47739), (101, 47802), (117,  
47868),

Gene: Egad\_72 Start: 45183, Stop: 45680, Start Num: 49  
Candidate Starts for Egad\_72:

(Start: 32 @45150 has 2 MA's), (37, 45162), (40, 45168), (Start: 49 @45183 has 19 MA's), (Start: 51 @45198 has 2 MA's), (85, 45363), (108, 45471), (128, 45564),

Gene: ElephantMan\_70 Start: 47272, Stop: 47775, Start Num: 42

Candidate Starts for ElephantMan\_70:

(Start: 42 @47272 has 149 MA's), (65, 47371), (101, 47533), (114, 47587), (127, 47644), (130, 47671), (134, 47722),

Gene: Elite2014\_105 Start: 61645, Stop: 61935, Start Num: 42

Candidate Starts for Elite2014\_105:

(Start: 42 @61645 has 149 MA's), (77, 61774), (82, 61798), (95, 61858), (103, 61906),

Gene: Elph10\_105 Start: 61484, Stop: 61774, Start Num: 42

Candidate Starts for Elph10\_105:

(Start: 42 @61484 has 149 MA's), (77, 61613), (82, 61637), (95, 61697), (103, 61745),

Gene: Elsa\_76 Start: 45700, Stop: 46212, Start Num: 45

Candidate Starts for Elsa\_76:

(Start: 45 @45700 has 20 MA's), (59, 45766), (60, 45769), (71, 45823), (102, 45967), (104, 45973), (109, 45994), (110, 45997),

Gene: Elver\_132 Start: 71317, Stop: 71790, Start Num: 51

Candidate Starts for Elver\_132:

(43, 71296), (Start: 51 @71317 has 2 MA's), (59, 71365), (60, 71368), (62, 71374), (65, 71392), (71, 71422), (116, 71605), (135, 71734),

Gene: Emmina\_106 Start: 61423, Stop: 61713, Start Num: 42

Candidate Starts for Emmina\_106:

(Start: 42 @61423 has 149 MA's), (77, 61552), (82, 61576), (95, 61636), (103, 61684),

Gene: Eureka\_105 Start: 62611, Stop: 62901, Start Num: 42

Candidate Starts for Eureka\_105:

(Start: 42 @62611 has 149 MA's), (77, 62740), (82, 62764), (95, 62824), (103, 62872),

Gene: Filch\_107 Start: 61797, Stop: 62087, Start Num: 42

Candidate Starts for Filch\_107:

(Start: 42 @61797 has 149 MA's), (77, 61926), (82, 61950), (95, 62010), (103, 62058),

Gene: FireRed\_109 Start: 62887, Stop: 63177, Start Num: 42

Candidate Starts for FireRed\_109:

(Start: 42 @62887 has 149 MA's), (77, 63016), (82, 63040), (95, 63100), (103, 63148),

Gene: Flypotenuse\_102 Start: 61072, Stop: 61362, Start Num: 42

Candidate Starts for Flypotenuse\_102:

(Start: 42 @61072 has 149 MA's), (77, 61201), (82, 61225), (95, 61285), (103, 61333),

Gene: Gage\_108 Start: 62143, Stop: 62433, Start Num: 42

Candidate Starts for Gage\_108:

(Start: 42 @62143 has 149 MA's), (77, 62272), (82, 62296), (95, 62356), (103, 62404),

Gene: Gandionco\_130 Start: 70114, Stop: 70608, Start Num: 43

Candidate Starts for Gandionco\_130:

(43, 70114), (Start: 51 @70135 has 2 MA's), (59, 70183), (60, 70186), (62, 70192), (65, 70210), (71, 70240), (116, 70423), (135, 70552),

Gene: GantcherGoblin\_71 Start: 44575, Stop: 45066, Start Num: 49

Candidate Starts for GantcherGoblin\_71:

(Start: 48 @44572 has 4 MA's), (Start: 49 @44575 has 19 MA's), (55, 44617), (56, 44620), (93, 44788), (110, 44869), (128, 44947),

Gene: Gator\_104 Start: 61931, Stop: 62218, Start Num: 42

Candidate Starts for Gator\_104:

(Start: 42 @61931 has 149 MA's), (77, 62060), (82, 62084), (95, 62144), (103, 62192),

Gene: Gemini\_111 Start: 62522, Stop: 62812, Start Num: 42

Candidate Starts for Gemini\_111:

(Start: 42 @62522 has 149 MA's), (77, 62651), (82, 62675), (95, 62735), (103, 62783),

Gene: Giantsbane\_73 Start: 45925, Stop: 46428, Start Num: 42

Candidate Starts for Giantsbane\_73:

(Start: 42 @45925 has 149 MA's), (Start: 51 @45949 has 2 MA's), (53, 45955), (55, 45976), (59, 45997), (65, 46024), (73, 46060), (101, 46186), (127, 46297), (130, 46324),

Gene: Glexan\_105 Start: 62202, Stop: 62492, Start Num: 42

Candidate Starts for Glexan\_105:

(Start: 42 @62202 has 149 MA's), (77, 62331), (82, 62355), (95, 62415), (103, 62463),

Gene: GoCrazy\_73 Start: 44995, Stop: 45507, Start Num: 45

Candidate Starts for GoCrazy\_73:

(14, 44923), (Start: 45 @44995 has 20 MA's), (60, 45064), (71, 45118), (102, 45262), (104, 45268), (109, 45289), (110, 45292), (135, 45436),

Gene: Goku\_105 Start: 62340, Stop: 62630, Start Num: 42

Candidate Starts for Goku\_105:

(Start: 42 @62340 has 149 MA's), (77, 62469), (82, 62493), (95, 62553), (103, 62601),

Gene: GoldenSpark\_110 Start: 62005, Stop: 62295, Start Num: 42

Candidate Starts for GoldenSpark\_110:

(Start: 42 @62005 has 149 MA's), (77, 62134), (82, 62158), (95, 62218), (103, 62266),

Gene: Goldilocks\_109 Start: 61901, Stop: 62191, Start Num: 42

Candidate Starts for Goldilocks\_109:

(Start: 42 @61901 has 149 MA's), (77, 62030), (82, 62054), (95, 62114), (103, 62162),

Gene: GooberAzure\_109 Start: 62005, Stop: 62295, Start Num: 42

Candidate Starts for GooberAzure\_109:

(Start: 42 @62005 has 149 MA's), (77, 62134), (82, 62158), (95, 62218), (103, 62266),

Gene: Gordon\_67 Start: 47259, Stop: 47762, Start Num: 42

Candidate Starts for Gordon\_67:

(Start: 42 @47259 has 149 MA's), (65, 47358), (101, 47520), (114, 47574), (127, 47631), (130, 47658), (134, 47709),

Gene: HanKaySha\_106 Start: 62193, Stop: 62483, Start Num: 42

Candidate Starts for HanKaySha\_106:

(Start: 42 @62193 has 149 MA's), (77, 62322), (82, 62346), (95, 62406), (103, 62454),

Gene: Hankly\_76 Start: 45190, Stop: 45702, Start Num: 45

Candidate Starts for Hankly\_76:

(Start: 45 @45190 has 20 MA's), (60, 45259), (71, 45313), (102, 45457), (104, 45463), (109, 45484),

Gene: Harella\_106 Start: 62718, Stop: 63008, Start Num: 42

Candidate Starts for Harella\_106:

(Start: 42 @62718 has 149 MA's), (77, 62847), (82, 62871), (95, 62931), (103, 62979),

Gene: Heisenberger\_75 Start: 44957, Stop: 45469, Start Num: 45

Candidate Starts for Heisenberger\_75:

(14, 44885), (Start: 45 @44957 has 20 MA's), (60, 45026), (71, 45080), (102, 45224), (104, 45230), (109, 45251), (110, 45254),

Gene: Henry\_103 Start: 62003, Stop: 62293, Start Num: 42

Candidate Starts for Henry\_103:

(Start: 42 @62003 has 149 MA's), (77, 62132), (82, 62156), (95, 62216), (103, 62264),

Gene: HerbBucket\_70 Start: 44915, Stop: 45412, Start Num: 49

Candidate Starts for HerbBucket\_70:

(Start: 32 @44882 has 2 MA's), (37, 44894), (40, 44900), (Start: 49 @44915 has 19 MA's), (Start: 51 @44930 has 2 MA's), (85, 45095), (108, 45203), (128, 45296),

Gene: Highbury\_102 Start: 60350, Stop: 60640, Start Num: 42

Candidate Starts for Highbury\_102:

(Start: 42 @60350 has 149 MA's), (77, 60479), (82, 60503), (95, 60563), (103, 60611),

Gene: Holt\_111 Start: 62419, Stop: 62709, Start Num: 42

Candidate Starts for Holt\_111:

(Start: 42 @62419 has 149 MA's), (77, 62548), (82, 62572), (95, 62632), (103, 62680),

Gene: Hoonter\_109 Start: 62498, Stop: 62788, Start Num: 42

Candidate Starts for Hoonter\_109:

(Start: 42 @62498 has 149 MA's), (77, 62627), (82, 62651), (95, 62711), (103, 62759),

Gene: Hokey\_106 Start: 62804, Stop: 63094, Start Num: 42

Candidate Starts for Hokey\_106:

(Start: 42 @62804 has 149 MA's), (77, 62933), (82, 62957), (95, 63017), (103, 63065),

Gene: HufflyPuff\_108 Start: 63113, Stop: 63403, Start Num: 42

Candidate Starts for HufflyPuff\_108:

(Start: 42 @63113 has 149 MA's), (77, 63242), (82, 63266), (95, 63326), (103, 63374),

Gene: IHOP\_104 Start: 61721, Stop: 62011, Start Num: 42

Candidate Starts for IHOP\_104:

(Start: 42 @61721 has 149 MA's), (77, 61850), (82, 61874), (95, 61934), (103, 61982),

Gene: Icee\_107 Start: 61529, Stop: 61819, Start Num: 42

Candidate Starts for Icee\_107:

(Start: 42 @61529 has 149 MA's), (77, 61658), (82, 61682), (95, 61742), (103, 61790),

Gene: Inca\_103 Start: 60210, Stop: 60500, Start Num: 42

Candidate Starts for Inca\_103:

(Start: 42 @60210 has 149 MA's), (77, 60339), (82, 60363), (95, 60423), (103, 60471),

Gene: Ingrid\_76 Start: 47223, Stop: 47726, Start Num: 42

Candidate Starts for Ingrid\_76:

(Start: 42 @47223 has 149 MA's), (59, 47295), (73, 47358), (83, 47397), (99, 47469), (101, 47484),

Gene: Inked\_75 Start: 47849, Stop: 48352, Start Num: 42

Candidate Starts for Inked\_75:

(Start: 42 @47849 has 149 MA's), (59, 47921), (73, 47984), (83, 48023), (99, 48095), (101, 48110),

Gene: Issa\_68 Start: 46433, Stop: 46936, Start Num: 42

Candidate Starts for Issa\_68:

(Start: 42 @46433 has 149 MA's), (65, 46532), (101, 46694), (114, 46748), (127, 46805), (130, 46832), (134, 46883),

Gene: IttyBittyPiggy\_27 Start: 22317, Stop: 22682, Start Num: 27

Candidate Starts for IttyBittyPiggy\_27:

(2, 22149), (Start: 27 @22317 has 2 MA's), (73, 22482), (83, 22521), (85, 22533),

Gene: JEGGS\_75 Start: 45036, Stop: 45548, Start Num: 45

Candidate Starts for JEGGS\_75:

(14, 44964), (Start: 45 @45036 has 20 MA's), (60, 45105), (71, 45159), (102, 45303), (104, 45309), (109, 45330), (110, 45333),

Gene: JasmineDragon\_30 Start: 22617, Stop: 23000, Start Num: 25

Candidate Starts for JasmineDragon\_30:

(1, 22437), (Start: 25 @22617 has 3 MA's), (75, 22791), (88, 22851),

Gene: Jazzy4900\_70 Start: 47081, Stop: 47557, Start Num: 49

Candidate Starts for Jazzy4900\_70:

(Start: 49 @47081 has 19 MA's), (68, 47177), (102, 47345), (136, 47525),

Gene: JeTaime\_104 Start: 61629, Stop: 61919, Start Num: 42

Candidate Starts for JeTaime\_104:

(Start: 42 @61629 has 149 MA's), (77, 61758), (82, 61782), (95, 61842), (103, 61890),

Gene: JoeDirt\_76 Start: 51825, Stop: 52229, Start Num: 24

Candidate Starts for JoeDirt\_76:

(6, 51750), (18, 51816), (Start: 24 @51825 has 2 MA's), (44, 51876), (50, 51894), (61, 51951), (63, 51954), (73, 52011), (83, 52053), (84, 52062), (85, 52065), (95, 52110), (96, 52113),

Gene: JoyLin\_69 Start: 47628, Stop: 47996, Start Num: 29

Candidate Starts for JoyLin\_69:

(9, 47559), (22, 47610), (Start: 29 @47628 has 3 MA's), (36, 47649), (Start: 49 @47667 has 19 MA's), (Start: 51 @47682 has 2 MA's), (73, 47793), (79, 47820), (84, 47841), (88, 47859), (101, 47922), (117, 47988),

Gene: Kanye\_103 Start: 62254, Stop: 62544, Start Num: 42

Candidate Starts for Kanye\_103:

(Start: 42 @62254 has 149 MA's), (77, 62383), (82, 62407), (95, 62467), (103, 62515),

Gene: Kardesai\_76 Start: 45309, Stop: 45821, Start Num: 45

Candidate Starts for Kardesai\_76:

(14, 45237), (Start: 45 @45309 has 20 MA's), (60, 45378), (71, 45432), (102, 45576), (104, 45582), (109, 45603), (110, 45606), (135, 45750),

Gene: KeaneyLin\_72 Start: 44995, Stop: 45507, Start Num: 45

Candidate Starts for KeaneyLin\_72:

(14, 44923), (Start: 45 @44995 has 20 MA's), (60, 45064), (71, 45118), (102, 45262), (104, 45268), (109, 45289), (110, 45292), (135, 45436),

Gene: KevinMinion\_72 Start: 45464, Stop: 45958, Start Num: 48

Candidate Starts for KevinMinion\_72:

(Start: 48 @45464 has 4 MA's), (Start: 49 @45467 has 19 MA's), (55, 45509), (56, 45512), (93, 45680), (110, 45761), (128, 45839),

Gene: Kimchi\_110 Start: 62146, Stop: 62436, Start Num: 42

Candidate Starts for Kimchi\_110:

(Start: 42 @62146 has 149 MA's), (77, 62275), (82, 62299), (95, 62359), (103, 62407),

Gene: Kinny\_77 Start: 46701, Stop: 47192, Start Num: 49

Candidate Starts for Kinny\_77:

(Start: 48 @46698 has 4 MA's), (Start: 49 @46701 has 19 MA's), (55, 46743), (56, 46746), (87, 46884), (93, 46914), (97, 46929), (110, 46995), (133, 47127), (135, 47139),

Gene: Kostya\_106 Start: 61823, Stop: 62113, Start Num: 42

Candidate Starts for Kostya\_106:

(Start: 42 @61823 has 149 MA's), (77, 61952), (82, 61976), (95, 62036), (103, 62084),

Gene: LadyAstra\_31 Start: 22651, Stop: 23034, Start Num: 25

Candidate Starts for LadyAstra\_31:

(8, 22591), (Start: 25 @22651 has 3 MA's), (88, 22885),

Gene: Leathea\_73 Start: 44483, Stop: 44992, Start Num: 49

Candidate Starts for Leathea\_73:

(35, 44459), (39, 44465), (Start: 48 @44480 has 4 MA's), (Start: 49 @44483 has 19 MA's), (56, 44528), (81, 44642), (93, 44696), (110, 44777), (118, 44801), (125, 44831),

Gene: Lewando\_77 Start: 46439, Stop: 46930, Start Num: 49

Candidate Starts for Lewando\_77:

(Start: 48 @46436 has 4 MA's), (Start: 49 @46439 has 19 MA's), (55, 46481), (56, 46484), (87, 46622), (93, 46652), (97, 46667), (110, 46733), (133, 46865), (135, 46877),

Gene: LilHuddy\_74 Start: 47051, Stop: 47554, Start Num: 42

Candidate Starts for LilHuddy\_74:

(Start: 42 @47051 has 149 MA's), (53, 47081), (55, 47102), (59, 47123), (65, 47150), (73, 47186), (101, 47312), (114, 47366), (127, 47423), (130, 47450),

Gene: Lilac\_107 Start: 62947, Stop: 63237, Start Num: 42

Candidate Starts for Lilac\_107:

(Start: 42 @62947 has 149 MA's), (77, 63076), (82, 63100), (95, 63160), (103, 63208),

Gene: Lilizi\_106 Start: 62233, Stop: 62523, Start Num: 42

Candidate Starts for Lilizi\_106:

(Start: 42 @62233 has 149 MA's), (77, 62362), (82, 62386), (95, 62446), (103, 62494),

Gene: Lilpickle\_105 Start: 61645, Stop: 61935, Start Num: 42

Candidate Starts for Lilpickle\_105:

(Start: 42 @61645 has 149 MA's), (77, 61774), (82, 61798), (95, 61858), (103, 61906),

Gene: LilyPad\_61 Start: 44847, Stop: 45245, Start Num: 15

Candidate Starts for LilyPad\_61:

(Start: 15 @44847 has 1 MA's), (17, 44853), (54, 44955), (72, 45030), (86, 45090), (94, 45123), (98, 45150), (101, 45165), (109, 45201),

Gene: Linda\_72 Start: 45202, Stop: 45699, Start Num: 49

Candidate Starts for Linda\_72:

(Start: 32 @45169 has 2 MA's), (37, 45181), (40, 45187), (Start: 49 @45202 has 19 MA's), (Start: 51 @45217 has 2 MA's), (85, 45382), (108, 45490), (128, 45583),

Gene: Loretta\_72 Start: 47223, Stop: 47726, Start Num: 42

Candidate Starts for Loretta\_72:

(Start: 42 @47223 has 149 MA's), (59, 47295), (73, 47358), (83, 47397), (99, 47469), (101, 47484),

Gene: LucySwiss\_69 Start: 46378, Stop: 46881, Start Num: 42

Candidate Starts for LucySwiss\_69:

(Start: 42 @46378 has 149 MA's), (65, 46477), (101, 46639), (114, 46693), (130, 46777), (134, 46828),

Gene: MISSy\_107 Start: 62930, Stop: 63220, Start Num: 42

Candidate Starts for MISSy\_107:

(Start: 42 @62930 has 149 MA's), (77, 63059), (82, 63083), (95, 63143), (103, 63191),

Gene: MPhalcon\_107 Start: 62348, Stop: 62638, Start Num: 42

Candidate Starts for MPhalcon\_107:

(Start: 42 @62348 has 149 MA's), (77, 62477), (82, 62501), (95, 62561), (103, 62609),

Gene: MadamMonkfish\_105 Start: 61655, Stop: 61945, Start Num: 42

Candidate Starts for MadamMonkfish\_105:

(Start: 42 @61655 has 149 MA's), (77, 61784), (82, 61808), (95, 61868), (103, 61916),

Gene: Makai\_73 Start: 47336, Stop: 47839, Start Num: 42

Candidate Starts for Makai\_73:

(Start: 42 @47336 has 149 MA's), (Start: 51 @47360 has 2 MA's), (55, 47387), (65, 47435), (73, 47471), (101, 47597), (114, 47651), (127, 47708), (130, 47735), (134, 47786),

Gene: Manda\_107 Start: 62385, Stop: 62675, Start Num: 42

Candidate Starts for Manda\_107:

(Start: 42 @62385 has 149 MA's), (77, 62514), (82, 62538), (95, 62598), (103, 62646),

Gene: Marshmallow\_103 Start: 62343, Stop: 62633, Start Num: 42

Candidate Starts for Marshmallow\_103:

(Start: 42 @62343 has 149 MA's), (77, 62472), (82, 62496), (95, 62556), (103, 62604),

Gene: Maxxinista\_107 Start: 62132, Stop: 62422, Start Num: 42

Candidate Starts for Maxxinista\_107:

(Start: 42 @62132 has 149 MA's), (77, 62261), (82, 62285), (95, 62345), (103, 62393),

Gene: MediumFry\_69 Start: 46566, Stop: 47069, Start Num: 42

Candidate Starts for MediumFry\_69:

(Start: 42 @46566 has 149 MA's), (59, 46638), (73, 46701), (83, 46740), (101, 46827), (127, 46938),

Gene: Michelle\_72 Start: 45171, Stop: 45701, Start Num: 32

Candidate Starts for Michelle\_72:

(Start: 32 @45171 has 2 MA's), (37, 45183), (40, 45189), (Start: 49 @45204 has 19 MA's), (Start: 51 @45219 has 2 MA's), (85, 45384), (108, 45492), (128, 45585),

Gene: Mindy\_105 Start: 61664, Stop: 61954, Start Num: 42

Candidate Starts for Mindy\_105:

(Start: 42 @61664 has 149 MA's), (77, 61793), (82, 61817), (95, 61877), (103, 61925),

Gene: MiniBagel\_69 Start: 47363, Stop: 47866, Start Num: 42

Candidate Starts for MiniBagel\_69:

(Start: 42 @47363 has 149 MA's), (59, 47435), (65, 47462), (101, 47624), (114, 47678), (127, 47735), (130, 47762), (134, 47813),

Gene: MiniMommy\_31 Start: 22618, Stop: 23001, Start Num: 25

Candidate Starts for MiniMommy\_31:

(1, 22438), (Start: 25 @22618 has 3 MA's), (75, 22792), (88, 22852),

Gene: Miniwave\_101 Start: 61841, Stop: 62131, Start Num: 42

Candidate Starts for Miniwave\_101:

(Start: 42 @61841 has 149 MA's), (77, 61970), (82, 61994), (95, 62054), (103, 62102),

Gene: Misfit\_107 Start: 63444, Stop: 63734, Start Num: 42

Candidate Starts for Misfit\_107:

(Start: 42 @63444 has 149 MA's), (77, 63573), (82, 63597), (95, 63657), (103, 63705),

Gene: Moldemort\_108 Start: 62113, Stop: 62403, Start Num: 42

Candidate Starts for Moldemort\_108:

(Start: 42 @62113 has 149 MA's), (77, 62242), (82, 62266), (95, 62326), (103, 62374),

Gene: Mollymur\_109 Start: 70923, Stop: 71270, Start Num: 26

Candidate Starts for Mollymur\_109:

(4, 70821), (5, 70833), (Start: 26 @70923 has 2 MA's), (73, 71088), (86, 71142), (96, 71184), (105, 71235),

Gene: Mooshroom\_77 Start: 45309, Stop: 45821, Start Num: 45

Candidate Starts for Mooshroom\_77:

(14, 45237), (Start: 45 @45309 has 20 MA's), (60, 45378), (71, 45432), (102, 45576), (104, 45582), (109, 45603), (110, 45606), (135, 45750),

Gene: Mosby\_102 Start: 61808, Stop: 62098, Start Num: 42

Candidate Starts for Mosby\_102:

(Start: 42 @61808 has 149 MA's), (77, 61937), (82, 61961), (95, 62021), (103, 62069),

Gene: MrAaronian\_72 Start: 45204, Stop: 45701, Start Num: 49

Candidate Starts for MrAaronian\_72:

(Start: 32 @45171 has 2 MA's), (37, 45183), (40, 45189), (Start: 49 @45204 has 19 MA's), (Start: 51 @45219 has 2 MA's), (85, 45384), (108, 45492), (128, 45585),

Gene: Mudcat\_72 Start: 46394, Stop: 46906, Start Num: 45



Candidate Starts for Mudcat\_72:

(14, 46322), (Start: 45 @46394 has 20 MA's), (60, 46463), (71, 46517), (102, 46661), (104, 46667), (109, 46688), (110, 46691),

Gene: Murica\_109 Start: 64147, Stop: 64437, Start Num: 42

Candidate Starts for Murica\_109:

(Start: 42 @64147 has 149 MA's), (77, 64276), (82, 64300), (95, 64360), (103, 64408),

Gene: Murphy\_105 Start: 62505, Stop: 62795, Start Num: 42

Candidate Starts for Murphy\_105:

(Start: 42 @62505 has 149 MA's), (77, 62634), (82, 62658), (95, 62718), (103, 62766),

Gene: Myrale\_106 Start: 62482, Stop: 62772, Start Num: 42

Candidate Starts for Myrale\_106:

(Start: 42 @62482 has 149 MA's), (77, 62611), (82, 62635), (95, 62695), (103, 62743),

Gene: Nala\_108 Start: 62857, Stop: 63147, Start Num: 42

Candidate Starts for Nala\_108:

(Start: 42 @62857 has 149 MA's), (77, 62986), (82, 63010), (95, 63070), (103, 63118),

Gene: NapoleonB\_77 Start: 45552, Stop: 46064, Start Num: 45

Candidate Starts for NapoleonB\_77:

(Start: 45 @45552 has 20 MA's), (60, 45621), (71, 45675), (102, 45819), (104, 45825), (109, 45846),

Gene: Nason\_76 Start: 45700, Stop: 46212, Start Num: 45

Candidate Starts for Nason\_76:

(Start: 45 @45700 has 20 MA's), (59, 45766), (60, 45769), (71, 45823), (102, 45967), (104, 45973), (109, 45994), (110, 45997),

Gene: Navi1117\_77 Start: 45655, Stop: 46146, Start Num: 49

Candidate Starts for Navi1117\_77:

(Start: 48 @45652 has 4 MA's), (Start: 49 @45655 has 19 MA's), (55, 45697), (56, 45700), (93, 45868), (110, 45949), (128, 46027),

Gene: Navi1117\_80 Start: 46821, Stop: 47384, Start Num: 12

Candidate Starts for Navi1117\_80:

(10, 46803), (12, 46821), (47, 46899), (139, 47376),

Gene: NelitzaMV\_103 Start: 60830, Stop: 61120, Start Num: 42

Candidate Starts for NelitzaMV\_103:

(Start: 42 @60830 has 149 MA's), (77, 60959), (82, 60983), (95, 61043), (103, 61091),

Gene: Nightmare\_70 Start: 47676, Stop: 48179, Start Num: 42

Candidate Starts for Nightmare\_70:

(Start: 42 @47676 has 149 MA's), (65, 47775), (101, 47937), (114, 47991), (127, 48048), (134, 48126),

Gene: Niktson\_70 Start: 47272, Stop: 47775, Start Num: 42

Candidate Starts for Niktson\_70:

(Start: 42 @47272 has 149 MA's), (65, 47371), (101, 47533), (114, 47587), (127, 47644), (130, 47671), (134, 47722),

Gene: Nimrod\_106 Start: 62491, Stop: 62781, Start Num: 42

Candidate Starts for Nimrod\_106:

(Start: 42 @62491 has 149 MA's), (77, 62620), (82, 62644), (95, 62704), (103, 62752),

Gene: Nivinsha\_72 Start: 46808, Stop: 47311, Start Num: 42

Candidate Starts for Nivinsha\_72:

(Start: 42 @46808 has 149 MA's), (65, 46907), (101, 47069), (114, 47123), (127, 47180), (134, 47258),

Gene: NoSleep\_106 Start: 61665, Stop: 61955, Start Num: 42

Candidate Starts for NoSleep\_106:

(Start: 42 @61665 has 149 MA's), (77, 61794), (82, 61818), (95, 61878), (103, 61926),

Gene: OhShagHennessy\_74 Start: 50528, Stop: 50932, Start Num: 24

Candidate Starts for OhShagHennessy\_74:

(6, 50453), (18, 50519), (Start: 24 @50528 has 2 MA's), (44, 50579), (50, 50597), (61, 50654), (63, 50657), (73, 50714), (83, 50756), (84, 50765), (85, 50768), (95, 50813), (96, 50816),

Gene: OrionPax\_104 Start: 61738, Stop: 62028, Start Num: 42

Candidate Starts for OrionPax\_104:

(Start: 42 @61738 has 149 MA's), (77, 61867), (82, 61891), (95, 61951), (103, 61999),

Gene: Paella\_134 Start: 71880, Stop: 72353, Start Num: 51

Candidate Starts for Paella\_134:

(43, 71859), (Start: 51 @71880 has 2 MA's), (59, 71928), (60, 71931), (62, 71937), (65, 71955), (71, 71985), (116, 72168), (135, 72297),

Gene: Paperbeatsrock\_105 Start: 62519, Stop: 62809, Start Num: 42

Candidate Starts for Paperbeatsrock\_105:

(Start: 42 @62519 has 149 MA's), (77, 62648), (82, 62672), (95, 62732), (103, 62780),

Gene: Pat3\_103 Start: 61036, Stop: 61323, Start Num: 42

Candidate Starts for Pat3\_103:

(Start: 42 @61036 has 149 MA's), (77, 61165), (82, 61189), (95, 61249), (103, 61297),

Gene: Phaby\_75 Start: 47582, Stop: 48085, Start Num: 42

Candidate Starts for Phaby\_75:

(Start: 42 @47582 has 149 MA's), (53, 47612), (55, 47633), (59, 47654), (65, 47681), (73, 47717), (101, 47843), (114, 47897), (127, 47954), (130, 47981),

Gene: Phaila\_75 Start: 44697, Stop: 45188, Start Num: 49

Candidate Starts for Phaila\_75:

(Start: 48 @44694 has 4 MA's), (Start: 49 @44697 has 19 MA's), (55, 44739), (56, 44742), (93, 44910), (110, 44991), (128, 45069),

Gene: Phaja\_104 Start: 61723, Stop: 62013, Start Num: 42

Candidate Starts for Phaja\_104:

(Start: 42 @61723 has 149 MA's), (77, 61852), (82, 61876), (95, 61936), (103, 61984),

Gene: Pharsalus\_103 Start: 62218, Stop: 62508, Start Num: 42

Candidate Starts for Pharsalus\_103:

(Start: 42 @62218 has 149 MA's), (77, 62347), (82, 62371), (95, 62431), (103, 62479),

Gene: PhatBacter\_109 Start: 62887, Stop: 63177, Start Num: 42

Candidate Starts for PhatBacter\_109:

(Start: 42 @62887 has 149 MA's), (77, 63016), (82, 63040), (95, 63100), (103, 63148),

Gene: Phaux\_108 Start: 63447, Stop: 63737, Start Num: 42

Candidate Starts for Phaux\_108:

(Start: 42 @63447 has 149 MA's), (77, 63576), (82, 63600), (95, 63660), (103, 63708),

Gene: Phrux\_102 Start: 61525, Stop: 61815, Start Num: 42

Candidate Starts for Phrux\_102:

(Start: 42 @61525 has 149 MA's), (77, 61654), (82, 61678), (95, 61738), (103, 61786),

Gene: Pippin15\_70 Start: 44587, Stop: 44967, Start Num: 28

Candidate Starts for Pippin15\_70:

(Start: 28 @44587 has 1 MA's), (34, 44605), (36, 44608), (46, 44626), (Start: 49 @44629 has 19 MA's), (64, 44716), (79, 44782), (84, 44803), (85, 44806), (88, 44821), (91, 44833), (101, 44884), (113, 44932), (117, 44950),

Gene: Porky\_104 Start: 61269, Stop: 61559, Start Num: 42

Candidate Starts for Porky\_104:

(Start: 42 @61269 has 149 MA's), (77, 61398), (82, 61422), (95, 61482), (103, 61530),

Gene: Powelldog\_76 Start: 45923, Stop: 46420, Start Num: 49

Candidate Starts for Powelldog\_76:

(Start: 21 @45860 has 1 MA's), (Start: 32 @45890 has 2 MA's), (37, 45902), (Start: 49 @45923 has 19 MA's), (60, 45989), (64, 46010), (65, 46013), (85, 46103), (92, 46130), (127, 46289),

Gene: ProfFrink\_72 Start: 45182, Stop: 45679, Start Num: 49

Candidate Starts for ProfFrink\_72:

(Start: 32 @45149 has 2 MA's), (37, 45161), (40, 45167), (Start: 49 @45182 has 19 MA's), (Start: 51 @45197 has 2 MA's), (85, 45362), (108, 45470), (128, 45563),

Gene: Pumpkin\_107 Start: 61865, Stop: 62155, Start Num: 42

Candidate Starts for Pumpkin\_107:

(Start: 42 @61865 has 149 MA's), (77, 61994), (82, 62018), (95, 62078), (103, 62126),

Gene: Qui\_134 Start: 71880, Stop: 72353, Start Num: 51

Candidate Starts for Qui\_134:

(43, 71859), (Start: 51 @71880 has 2 MA's), (59, 71928), (60, 71931), (62, 71937), (65, 71955), (71, 71985), (116, 72168), (135, 72297),

Gene: Rakim\_107 Start: 61934, Stop: 62221, Start Num: 42

Candidate Starts for Rakim\_107:

(Start: 42 @61934 has 149 MA's), (77, 62063), (82, 62087), (95, 62147), (103, 62195),

Gene: Raunak\_73 Start: 44844, Stop: 45341, Start Num: 49

Candidate Starts for Raunak\_73:

(Start: 32 @44811 has 2 MA's), (37, 44823), (40, 44829), (Start: 49 @44844 has 19 MA's), (Start: 51 @44859 has 2 MA's), (85, 45024), (108, 45132), (128, 45225),

Gene: RedWattleHog\_18 Start: 21845, Stop: 22282, Start Num: 27

Candidate Starts for RedWattleHog\_18:

(Start: 27 @21845 has 2 MA's), (50, 21908), (57, 21947), (58, 21950), (64, 21968), (102, 22148), (122, 22226), (129, 22271),

Gene: Renaldo\_81 Start: 46660, Stop: 47151, Start Num: 49

Candidate Starts for Renaldo\_81:

(Start: 48 @46657 has 4 MA's), (Start: 49 @46660 has 19 MA's), (55, 46702), (56, 46705), (87, 46843), (93, 46873), (97, 46888), (110, 46954), (133, 47086), (135, 47098),

Gene: Rimmer\_104 Start: 62324, Stop: 62614, Start Num: 42

Candidate Starts for Rimmer\_104:

(Start: 42 @62324 has 149 MA's), (77, 62453), (82, 62477), (95, 62537), (103, 62585),

Gene: RiverMonster\_105 Start: 62420, Stop: 62710, Start Num: 42

Candidate Starts for RiverMonster\_105:

(Start: 42 @62420 has 149 MA's), (77, 62549), (82, 62573), (95, 62633), (103, 62681),

Gene: Saints25\_102 Start: 60350, Stop: 60640, Start Num: 42

Candidate Starts for Saints25\_102:

(Start: 42 @60350 has 149 MA's), (77, 60479), (82, 60503), (95, 60563), (103, 60611),

Gene: Salk\_72 Start: 45202, Stop: 45699, Start Num: 49

Candidate Starts for Salk\_72:

(Start: 32 @45169 has 2 MA's), (37, 45181), (40, 45187), (Start: 49 @45202 has 19 MA's), (Start: 51 @45217 has 2 MA's), (85, 45382), (108, 45490), (128, 45583),

Gene: Sassay\_101 Start: 60770, Stop: 61060, Start Num: 42

Candidate Starts for Sassay\_101:

(Start: 42 @60770 has 149 MA's), (77, 60899), (82, 60923), (95, 60983), (103, 61031),

Gene: ScienceWizSam\_71 Start: 46973, Stop: 47476, Start Num: 42

Candidate Starts for ScienceWizSam\_71:

(Start: 42 @46973 has 149 MA's), (65, 47072), (101, 47234), (114, 47288), (127, 47345), (130, 47372), (134, 47423),

Gene: Serenabean\_69 Start: 43953, Stop: 44279, Start Num: 49

Candidate Starts for Serenabean\_69:

(16, 43881), (35, 43932), (Start: 48 @43950 has 4 MA's), (Start: 49 @43953 has 19 MA's), (55, 43995), (56, 43998), (71, 44070), (72, 44073), (80, 44109), (82, 44115), (85, 44130), (95, 44172), (104, 44223), (110, 44241), (117, 44271),

Gene: ShakeltOph\_31 Start: 22617, Stop: 23000, Start Num: 25

Candidate Starts for ShakeltOph\_31:

(1, 22437), (Start: 25 @22617 has 3 MA's), (75, 22791), (88, 22851),

Gene: ShamWow\_106 Start: 62698, Stop: 62988, Start Num: 42

Candidate Starts for ShamWow\_106:

(Start: 42 @62698 has 149 MA's), (77, 62827), (82, 62851), (95, 62911), (103, 62959),

Gene: Shepard\_74 Start: 46904, Stop: 47407, Start Num: 42

Candidate Starts for Shepard\_74:

(Start: 42 @46904 has 149 MA's), (53, 46934), (55, 46955), (59, 46976), (65, 47003), (73, 47039), (101, 47165), (114, 47219), (127, 47276), (130, 47303),

Gene: ShereKhan\_104 Start: 63179, Stop: 63469, Start Num: 42

Candidate Starts for ShereKhan\_104:

(Start: 42 @63179 has 149 MA's), (77, 63308), (82, 63332), (95, 63392), (103, 63440),

Gene: Shiba\_71 Start: 44860, Stop: 45357, Start Num: 49  
Candidate Starts for Shiba\_71:  
(Start: 32 @44827 has 2 MA's), (37, 44839), (40, 44845), (Start: 49 @44860 has 19 MA's), (Start: 51 @44875 has 2 MA's), (85, 45040), (108, 45148), (128, 45241),

Gene: Simpliphy\_104 Start: 61991, Stop: 62281, Start Num: 42  
Candidate Starts for Simpliphy\_104:  
(Start: 42 @61991 has 149 MA's), (77, 62120), (82, 62144), (95, 62204), (103, 62252),

Gene: SirDuracell\_106 Start: 61536, Stop: 61823, Start Num: 42  
Candidate Starts for SirDuracell\_106:  
(Start: 42 @61536 has 149 MA's), (77, 61665), (82, 61689), (95, 61749), (103, 61797),

Gene: Sleepyhead\_60 Start: 39674, Stop: 40021, Start Num: 13  
Candidate Starts for Sleepyhead\_60:  
(Start: 13 @39674 has 1 MA's), (84, 39896), (94, 39935), (107, 40004),

Gene: Sloopyjoe\_72 Start: 45206, Stop: 45703, Start Num: 49  
Candidate Starts for Sloopyjoe\_72:  
(Start: 32 @45173 has 2 MA's), (37, 45185), (40, 45191), (Start: 49 @45206 has 19 MA's), (Start: 51 @45221 has 2 MA's), (85, 45386), (108, 45494), (128, 45587),

Gene: SophKB\_104 Start: 61980, Stop: 62270, Start Num: 42  
Candidate Starts for SophKB\_104:  
(Start: 42 @61980 has 149 MA's), (77, 62109), (82, 62133), (95, 62193), (103, 62241),

Gene: Sotrice96\_107 Start: 62444, Stop: 62734, Start Num: 42  
Candidate Starts for Sotrice96\_107:  
(Start: 42 @62444 has 149 MA's), (77, 62573), (82, 62597), (95, 62657), (103, 62705),

Gene: SpeedDemon\_1110 Start: 72859, Stop: 73215, Start Num: 20  
Candidate Starts for SpeedDemon\_1110:  
(7, 72799), (Start: 20 @72859 has 2 MA's), (73, 73030), (82, 73066), (105, 73177), (107, 73186),

Gene: Sporto\_71 Start: 46287, Stop: 46784, Start Num: 49  
Candidate Starts for Sporto\_71:  
(31, 46248), (Start: 49 @46287 has 19 MA's), (59, 46350), (65, 46377), (79, 46440), (92, 46494), (106, 46569), (115, 46599), (127, 46653),

Gene: Stank\_108 Start: 62218, Stop: 62508, Start Num: 42  
Candidate Starts for Stank\_108:  
(Start: 42 @62218 has 149 MA's), (77, 62347), (82, 62371), (95, 62431), (103, 62479),

Gene: StarLord\_72 Start: 45199, Stop: 45696, Start Num: 49  
Candidate Starts for StarLord\_72:  
(Start: 32 @45166 has 2 MA's), (37, 45178), (40, 45184), (Start: 49 @45199 has 19 MA's), (Start: 51 @45214 has 2 MA's), (85, 45379), (108, 45487), (128, 45580),

Gene: Stark\_106 Start: 62304, Stop: 62594, Start Num: 42  
Candidate Starts for Stark\_106:  
(Start: 42 @62304 has 149 MA's), (77, 62433), (82, 62457), (95, 62517), (103, 62565),

Gene: Stayer\_72 Start: 45169, Stop: 45699, Start Num: 32

Candidate Starts for Stayer\_72:

(Start: 32 @45169 has 2 MA's), (37, 45181), (40, 45187), (Start: 49 @45202 has 19 MA's), (Start: 51 @45217 has 2 MA's), (85, 45382), (108, 45490), (128, 45583),

Gene: StellaBean\_105 Start: 62601, Stop: 62891, Start Num: 42

Candidate Starts for StellaBean\_105:

(Start: 42 @62601 has 149 MA's), (77, 62730), (82, 62754), (95, 62814), (103, 62862),

Gene: StolenFromERC\_108 Start: 62143, Stop: 62433, Start Num: 42

Candidate Starts for StolenFromERC\_108:

(Start: 42 @62143 has 149 MA's), (77, 62272), (82, 62296), (95, 62356), (103, 62404),

Gene: Sunny4976\_69 Start: 47081, Stop: 47557, Start Num: 49

Candidate Starts for Sunny4976\_69:

(Start: 49 @47081 has 19 MA's), (68, 47177), (102, 47345), (136, 47525),

Gene: Sweetclover\_67 Start: 43166, Stop: 43486, Start Num: 44

Candidate Starts for Sweetclover\_67:

(44, 43166), (56, 43211), (82, 43328), (104, 43436), (110, 43454), (117, 43478),

Gene: Synopsis\_66 Start: 46738, Stop: 47241, Start Num: 42

Candidate Starts for Synopsis\_66:

(Start: 42 @46738 has 149 MA's), (65, 46837), (101, 46999), (114, 47053), (127, 47110), (134, 47188),

Gene: TBrady12\_109 Start: 61655, Stop: 61945, Start Num: 42

Candidate Starts for TBrady12\_109:

(Start: 42 @61655 has 149 MA's), (77, 61784), (82, 61808), (95, 61868), (103, 61916),

Gene: Tarkin\_105 Start: 63044, Stop: 63334, Start Num: 42

Candidate Starts for Tarkin\_105:

(Start: 42 @63044 has 149 MA's), (77, 63173), (82, 63197), (95, 63257), (103, 63305),

Gene: Tatanka\_63 Start: 46880, Stop: 47383, Start Num: 42

Candidate Starts for Tatanka\_63:

(Start: 42 @46880 has 149 MA's), (65, 46979), (101, 47141), (114, 47195), (127, 47252), (130, 47279), (134, 47330),

Gene: Teacup\_71 Start: 47312, Stop: 47815, Start Num: 42

Candidate Starts for Teacup\_71:

(Start: 42 @47312 has 149 MA's), (65, 47411), (100, 47570), (101, 47573), (114, 47627), (127, 47684), (130, 47711), (134, 47762),

Gene: TeardropMSU\_102 Start: 61546, Stop: 61836, Start Num: 42

Candidate Starts for TeardropMSU\_102:

(Start: 42 @61546 has 149 MA's), (77, 61675), (82, 61699), (95, 61759), (103, 61807),

Gene: Teaspoon\_106 Start: 62203, Stop: 62493, Start Num: 42

Candidate Starts for Teaspoon\_106:

(Start: 42 @62203 has 149 MA's), (77, 62332), (82, 62356), (95, 62416), (103, 62464),

Gene: Tenney120\_76 Start: 45235, Stop: 45726, Start Num: 49

Candidate Starts for Tenney120\_76:

(Start: 48 @45232 has 4 MA's), (Start: 49 @45235 has 19 MA's), (55, 45277), (56, 45280), (93, 45448), (110, 45529),

Gene: Tenno\_69 Start: 47396, Stop: 47899, Start Num: 42

Candidate Starts for Tenno\_69:

(Start: 42 @47396 has 149 MA's), (Start: 51 @47420 has 2 MA's), (65, 47495), (101, 47657), (114, 47711), (127, 47768), (130, 47795), (134, 47846),

Gene: Terminus\_109 Start: 63444, Stop: 63734, Start Num: 42

Candidate Starts for Terminus\_109:

(Start: 42 @63444 has 149 MA's), (77, 63573), (82, 63597), (95, 63657), (103, 63705),

Gene: Thresher\_107 Start: 63084, Stop: 63374, Start Num: 42

Candidate Starts for Thresher\_107:

(Start: 42 @63084 has 149 MA's), (77, 63213), (82, 63237), (95, 63297), (103, 63345),

Gene: Tokki\_79 Start: 47450, Stop: 47953, Start Num: 42

Candidate Starts for Tokki\_79:

(Start: 42 @47450 has 149 MA's), (53, 47480), (55, 47501), (59, 47522), (65, 47549), (73, 47585), (101, 47711), (114, 47765), (127, 47822), (130, 47849),

Gene: Tomaszewski\_101 Start: 61982, Stop: 62272, Start Num: 42

Candidate Starts for Tomaszewski\_101:

(Start: 42 @61982 has 149 MA's), (77, 62111), (82, 62135), (95, 62195), (103, 62243),

Gene: Toto\_104 Start: 62698, Stop: 62988, Start Num: 42

Candidate Starts for Toto\_104:

(Start: 42 @62698 has 149 MA's), (77, 62827), (82, 62851), (95, 62911), (103, 62959),

Gene: Towmatter\_106 Start: 67264, Stop: 67620, Start Num: 19

Candidate Starts for Towmatter\_106:

(Start: 19 @67264 has 1 MA's), (Start: 32 @67288 has 2 MA's), (66, 67411), (82, 67471), (105, 67582),

Gene: Traaww1\_102 Start: 61247, Stop: 61537, Start Num: 42

Candidate Starts for Traaww1\_102:

(Start: 42 @61247 has 149 MA's), (77, 61376), (82, 61400), (95, 61460), (103, 61508),

Gene: Tribby\_80 Start: 46452, Stop: 46964, Start Num: 45

Candidate Starts for Tribby\_80:

(Start: 45 @46452 has 20 MA's), (60, 46521), (71, 46575), (102, 46719), (109, 46746),

Gene: TrixiePhattel\_75 Start: 44885, Stop: 45361, Start Num: 51

Candidate Starts for TrixiePhattel\_75:

(35, 44846), (Start: 48 @44867 has 4 MA's), (Start: 49 @44870 has 19 MA's), (Start: 51 @44885 has 2 MA's), (56, 44915), (87, 45053), (93, 45083), (110, 45164), (118, 45188), (125, 45218), (128, 45242), (135, 45308),

Gene: Truckee\_71 Start: 47121, Stop: 47624, Start Num: 42

Candidate Starts for Truckee\_71:

(Start: 42 @47121 has 149 MA's), (Start: 51 @47145 has 2 MA's), (55, 47172), (65, 47220), (73, 47256), (101, 47382), (114, 47436), (127, 47493), (130, 47520), (134, 47571),

Gene: Trustiboi\_68 Start: 46995, Stop: 47498, Start Num: 42

Candidate Starts for Trustiboi\_68:

(Start: 42 @46995 has 149 MA's), (65, 47094), (101, 47256), (114, 47310), (127, 47367), (130, 47394), (134, 47445),

Gene: Tuco\_107 Start: 63605, Stop: 63895, Start Num: 42

Candidate Starts for Tuco\_107:

(Start: 42 @63605 has 149 MA's), (77, 63734), (82, 63758), (95, 63818), (103, 63866),

Gene: Ukulele\_100 Start: 61803, Stop: 62093, Start Num: 42

Candidate Starts for Ukulele\_100:

(Start: 42 @61803 has 149 MA's), (77, 61932), (82, 61956), (95, 62016), (103, 62064),

Gene: Uzumaki\_70 Start: 44675, Stop: 45166, Start Num: 49

Candidate Starts for Uzumaki\_70:

(Start: 48 @44672 has 4 MA's), (Start: 49 @44675 has 19 MA's), (55, 44717), (56, 44720), (93, 44888), (110, 44969), (128, 45047),

Gene: VroomVroom\_30 Start: 22712, Stop: 23095, Start Num: 25

Candidate Starts for VroomVroom\_30:

(1, 22532), (Start: 25 @22712 has 3 MA's), (88, 22946),

Gene: Wiggin\_108 Start: 61648, Stop: 61938, Start Num: 42

Candidate Starts for Wiggin\_108:

(Start: 42 @61648 has 149 MA's), (77, 61777), (82, 61801), (95, 61861), (103, 61909),

Gene: Willez\_101 Start: 60770, Stop: 61060, Start Num: 42

Candidate Starts for Willez\_101:

(Start: 42 @60770 has 149 MA's), (77, 60899), (82, 60923), (95, 60983), (103, 61031),

Gene: Xenomorph\_73 Start: 45979, Stop: 46491, Start Num: 45

Candidate Starts for Xenomorph\_73:

(Start: 45 @45979 has 20 MA's), (60, 46048), (71, 46102), (102, 46246), (104, 46252), (109, 46273), (110, 46276), (135, 46420),

Gene: YassJohnny\_103 Start: 60791, Stop: 61081, Start Num: 42

Candidate Starts for YassJohnny\_103:

(Start: 42 @60791 has 149 MA's), (77, 60920), (82, 60944), (95, 61004), (103, 61052),

Gene: Yotsuba\_69 Start: 47646, Stop: 48014, Start Num: 29

Candidate Starts for Yotsuba\_69:

(9, 47577), (22, 47628), (Start: 29 @47646 has 3 MA's), (36, 47667), (Start: 49 @47685 has 19 MA's), (Start: 51 @47700 has 2 MA's), (73, 47811), (79, 47838), (84, 47859), (88, 47877), (101, 47940), (117, 48006),

Gene: Youngblood\_109 Start: 62940, Stop: 63230, Start Num: 42

Candidate Starts for Youngblood\_109:

(Start: 42 @62940 has 149 MA's), (77, 63069), (82, 63093), (95, 63153), (103, 63201),

Gene: Zeina\_76 Start: 45531, Stop: 46022, Start Num: 49

Candidate Starts for Zeina\_76:

(Start: 48 @45528 has 4 MA's), (Start: 49 @45531 has 19 MA's), (55, 45573), (56, 45576), (93, 45744), (110, 45825), (128, 45903),



Gene: Zippen\_74 Start: 47714, Stop: 48217, Start Num: 42

Candidate Starts for Zippen\_74:

(Start: 42 @47714 has 149 MA's), (59, 47786), (73, 47849), (83, 47888), (101, 47975),

Gene: xkcd\_109 Start: 63125, Stop: 63415, Start Num: 42

Candidate Starts for xkcd\_109:

(Start: 42 @63125 has 149 MA's), (77, 63254), (82, 63278), (95, 63338), (103, 63386),