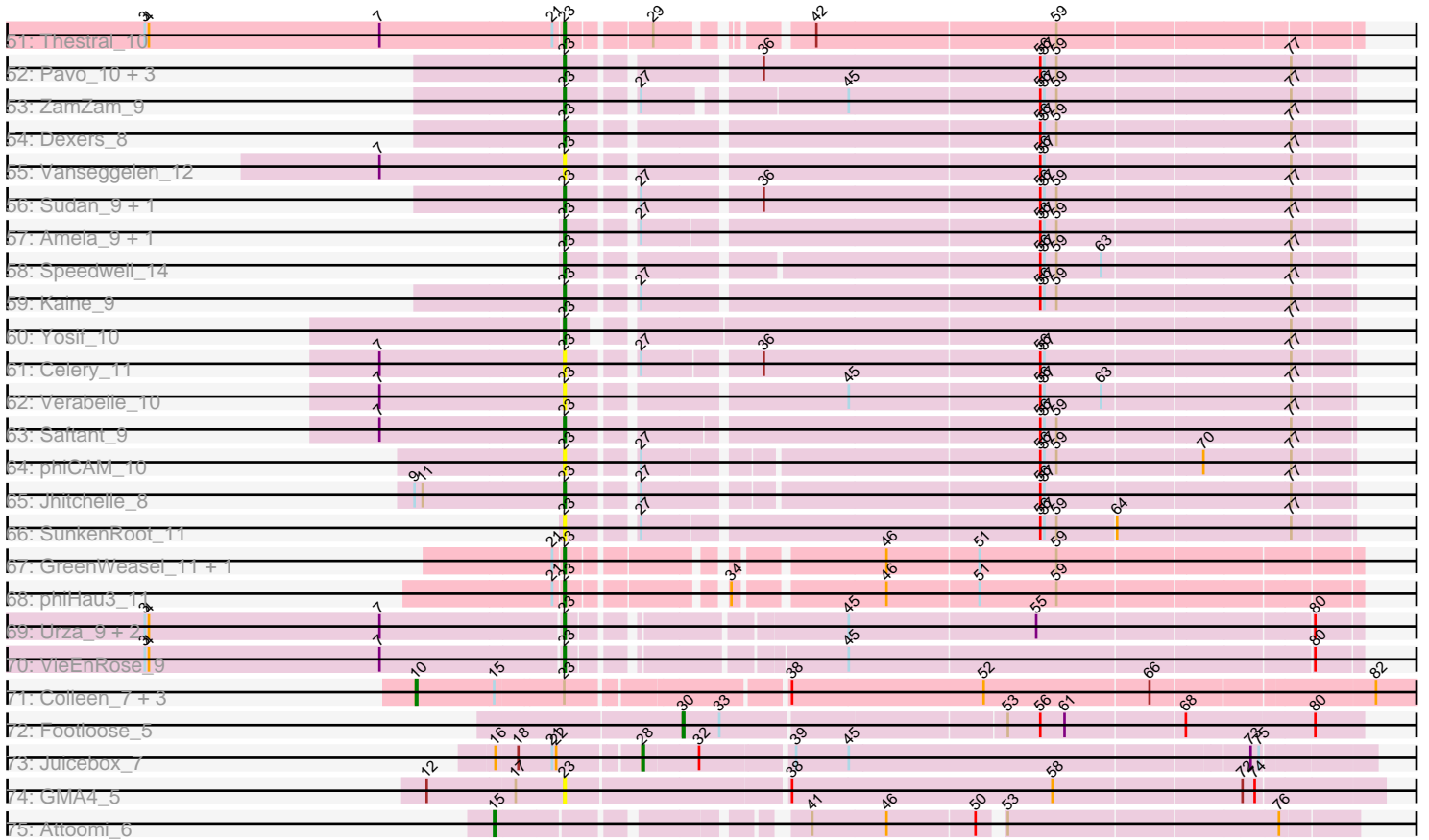


Pham 311269



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 311269 Report

This analysis was run 06/27/26 on database version 652.

WARNING: Pham size does not match number of genes in report. Either unphamerated genes have been added (by you) or starterator has removed genes due to invalid start codon.

Pham number 311269 has 179 members, 24 are drafts.

Phages represented in each track:

- Track 1 : Auxilium\_6, MUWow\_5, AdaS\_6, BillyTP\_6, JellyBread\_6, Richie\_6, CookieBear\_6, Lasker\_6, Raphaella\_6
- Track 2 : BenchScraper\_6
- Track 3 : Ding\_6
- Track 4 : Faja\_6, BlueShadow\_6, MidnightRain\_6, RadFad\_6, Hillester\_6, Aikyam\_6, SonDevVon\_5, MaterMagnus\_6
- Track 5 : Nyilah\_5, Tiff81\_7
- Track 6 : BasketStar\_6
- Track 7 : JakeTheSnake\_6, Persistence\_5
- Track 8 : Kabloowy\_6
- Track 9 : Sashimi\_7, LeBruni\_6, EvePickles\_6, Satrap\_6, Shukran\_6
- Track 10 : GumGum\_6, DarwinJr\_9, Anekin\_5, Crescenzo\_6
- Track 11 : Sporco\_7, SpicyFrank\_6, NewKitty\_7
- Track 12 : Raqqa\_6
- Track 13 : Mapleville\_5, Lawnathon\_6
- Track 14 : Windest\_7, Isolde\_7, Vopal\_7
- Track 15 : AbbyDaisy\_6
- Track 16 : Hestia\_6, ThayneTheZag\_6
- Track 17 : Globfish\_6
- Track 18 : Phrank15\_5
- Track 19 : Bhageatrice\_8, Gorpy\_6, Sakai\_6, MurphyJoseph\_6
- Track 20 : CosmicBrownie\_5
- Track 21 : YoungHarleezy\_6
- Track 22 : TuanPN\_9, Yasdni\_9, Godpower\_10, Maneekul\_9, Celeste\_9, Ejemplo\_9, Zemlya\_10, Lika\_9
- Track 23 : Ozzie\_9, Nerdos\_9, Leviticus\_9, Bovely\_9, SunsetPointe\_9, Hydra\_11, Phettuccine\_9, Aaronocolus\_9, Legacy\_9, Indigo\_9, Unstoppable\_9, BeardedLady\_10, Esperer\_9, Caliburn\_9
- Track 24 : Lannister\_10
- Track 25 : Lorelei\_9, Nabi\_9, Rana\_9
- Track 26 : Dattran\_10, Goby\_9, Danzina\_10, Toma\_9
- Track 27 : SarahRose\_9, Brataylor\_10, Chucky\_9, Snorlax\_9, Nanodon\_11, TaguePghter\_10, Dwayne\_9, Emaanora\_11, Werner\_9, Katalie\_10, RedBear\_11,

Sujidade\_10, Hippo\_9, South40\_10, Whatever\_9

- Track 28 : OzzyJ\_10, Asten\_9, Triste\_9
- Track 29 : Eddasa\_10, BryanRecycles\_10, Oliynyk\_10, Rusticus\_10, EnochSoames\_10, Izzy\_10, Jash\_10
- Track 30 : BarryBee\_11
- Track 31 : TinaBelcher\_9, Bowden\_10
- Track 32 : Nishikigoi\_9, Haizum\_9, Tefunt\_9, Diane\_9
- Track 33 : Janus\_10, SqueakyClean\_10, Animus\_10, GirlDinner\_9
- Track 34 : Hank144\_10
- Track 35 : Triumph\_11, Axiom\_10
- Track 36 : Puginator\_11, Zainub\_11, Paolo\_11
- Track 37 : Marav\_12
- Track 38 : Daudau\_9
- Track 39 : Andris\_9
- Track 40 : Caelum\_10
- Track 41 : Alvy\_11, BartholomewSD\_11
- Track 42 : Amethyst\_9
- Track 43 : Pablito\_9
- Track 44 : R4\_9, ELB20\_08
- Track 45 : Paedore\_9, Loofah\_10
- Track 46 : TrvxScott\_8
- Track 47 : Jevington\_11
- Track 48 : Issmi\_10
- Track 49 : Omar\_10
- Track 50 : Superstar\_11
- Track 51 : Thestral\_10
- Track 52 : Pavo\_10, Conan\_10, ElGato\_10, Provolone\_10
- Track 53 : ZamZam\_9
- Track 54 : Dexers\_8
- Track 55 : Vanseggelen\_12
- Track 56 : Sudan\_9, Alsaber\_10
- Track 57 : Amela\_9, Verse\_9
- Track 58 : Speedwell\_14
- Track 59 : Kaine\_9
- Track 60 : Yosif\_10
- Track 61 : Celery\_11
- Track 62 : Verabelle\_10
- Track 63 : Saftant\_9
- Track 64 : phiCAM\_10
- Track 65 : Jhitchelle\_8
- Track 66 : SunkenRoot\_11
- Track 67 : GreenWeasel\_11, BroPlease\_10
- Track 68 : phiHau3\_11
- Track 69 : Urza\_9, Celia\_9, Itza\_9
- Track 70 : VieEnRose\_9
- Track 71 : Colleen\_7, TouchMeNot\_7, Arianna\_7, Poushou\_7
- Track 72 : Footloose\_5
- Track 73 : Juicebox\_7
- Track 74 : GMA4\_5
- Track 75 : Attoomi\_6

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

The start number called the most often in the published annotations is 23, it was called in 107 of the 155 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Aaronocolus\_9, Alsaber\_10, Alvy\_11, Amela\_9, Amethyst\_9, Andris\_9, Animus\_10, Asten\_9, Axiom\_10, BarryBee\_11, BartholomewSD\_11, BeardedLady\_10, Bovely\_9, Bowden\_10, Brataylor\_10, BroPlease\_10, BryanRecycles\_10, Caliburn\_9, Celery\_11, Celeste\_9, Celia\_9, Chucky\_9, Conan\_10, Danzina\_10, Dattran\_10, Daudau\_9, Dexers\_8, Diane\_9, Dwayne\_9, ELB20\_08, Eddasa\_10, Ejemplo\_9, ElGato\_10, Emaanora\_11, EnochSoames\_10, Esperer\_9, GMA4\_5, GirlDinner\_9, Goby\_9, Godpower\_10, GreenWeasel\_11, Haizum\_9, Hippo\_9, Hydra\_11, Indigo\_9, Issmi\_10, Itza\_9, Izzy\_10, Janus\_10, Jash\_10, Jevington\_11, Jhitchelle\_8, Kaine\_9, Katalie\_10, Lannister\_10, Legacy\_9, Leviticus\_9, Lika\_9, Loofah\_10, Lorelei\_9, Maneekul\_9, Marav\_12, Nabi\_9, Nanodon\_11, Nerdos\_9, Nishikigoi\_9, Oliynyk\_10, Omar\_10, Ozzie\_9, OzzyJ\_10, Pablito\_9, Paedore\_9, Paolo\_11, Pavo\_10, Phettuccine\_9, Provolone\_10, Puginator\_11, R4\_9, Rana\_9, RedBear\_11, Rusticus\_10, Saftant\_9, SarahRose\_9, Snorlax\_9, South40\_10, Speedwell\_14, SqueakyClean\_10, Sudan\_9, Sujidade\_10, SunkenRoot\_11, SunsetPointe\_9, Superstar\_11, TagePhighter\_10, Tefunt\_9, Thestral\_10, TinaBelcher\_9, Toma\_9, Triste\_9, Triumph\_11, TuanPN\_9, Unstoppable\_9, Urza\_9, Vanseggelen\_12, Verabelle\_10, Verse\_9, VieEnRose\_9, Werner\_9, Whatever\_9, Yasdni1\_9, Yosif\_10, Zainub\_11, ZamZam\_9, Zemlya\_10, phiCAM\_10, phiHau3\_11,

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

- Arianna\_7, Caelum\_10, Colleen\_7, Hank144\_10, Poushou\_7, TouchMeNot\_7, TrvxScott\_8,

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

- AbbyDaisy\_6, AdaS\_6, Aikyam\_6, Anekin\_5, Attoomi\_6, Auxilium\_6, BasketStar\_6, BenchScraper\_6, Bhageatrice\_8, BillyTP\_6, BlueShadow\_6, CookieBear\_6, CosmicBrownie\_5, Crescenzo\_6, DarwinJr\_9, Ding\_6, EvePickles\_6, Faja\_6, Footloose\_5, Globfish\_6, Gorpy\_6, GumGum\_6, Hestia\_6, Hillester\_6, Isolde\_7, JakeTheSnake\_6, JellyBread\_6, Juicebox\_7, Kabloowy\_6, Lasker\_6, Lawnathon\_6, LeBruni\_6, MUWow\_5, Mapleville\_5, MaterMagnus\_6, MidnightRain\_6, MurphyJoseph\_6, NewKitty\_7, Nyilah\_5, Persistence\_5, Phrank15\_5, RadFad\_6, Raphaella\_6, Raqqa\_6, Richie\_6, Sakai\_6, Sashimi\_7, Satrap\_6, Shukran\_6, SonDevVon\_5, SpicyFrank\_6, Sporco\_7, ThayneTheZag\_6, Tiff81\_7, Vopal\_7, Windest\_7, YoungHarleezy\_6,

## **Summary by start number:**

Start 10:

- Found in 4 of 179 ( 2.2% ) of genes in pham
- Manual Annotations of this start: 4 of 155
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Arianna\_7 (EO), Colleen\_7 (EO), Poushou\_7 (EO), TouchMeNot\_7 (EO),

Start 15:

- Found in 5 of 179 ( 2.8% ) of genes in pham

- Manual Annotations of this start: 1 of 155
- Called 20.0% of time when present
- Phage (with cluster) where this start called: Attoomi\_6 (singleton),

#### Start 20:

- Found in 2 of 179 ( 1.1% ) of genes in pham
- Manual Annotations of this start: 1 of 155
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AbbyDaisy\_6 (AY), Raqqa\_6 (AY),

#### Start 21:

- Found in 27 of 179 ( 15.1% ) of genes in pham
- Manual Annotations of this start: 3 of 155
- Called 11.1% of time when present
- Phage (with cluster) where this start called: Caelum\_10 (BD2), Hank144\_10 (BD2), TrvxScott\_8 (BD2),

#### Start 23:

- Found in 122 of 179 ( 68.2% ) of genes in pham
- Manual Annotations of this start: 107 of 155
- Called 94.3% of time when present
- Phage (with cluster) where this start called: Aaronocolus\_9 (BD1), Alsaber\_10 (BD3), Alvy\_11 (BD2), Amela\_9 (BD3), Amethyst\_9 (BD2), Andris\_9 (BD2), Animus\_10 (BD2), Asten\_9 (BD1), Axiom\_10 (BD2), BarryBee\_11 (BD1), BartholomewSD\_11 (BD2), BeardedLady\_10 (BD1), Bovely\_9 (BD1), Bowden\_10 (BD2), Brataylor\_10 (BD1), BroPlease\_10 (BD4), BryanRecycles\_10 (BD1), Caliburn\_9 (BD1), Celery\_11 (BD3), Celeste\_9 (BD1), Celia\_9 (BD6), Chucky\_9 (BD1), Conan\_10 (BD3), Danzina\_10 (BD1), Dattran\_10 (BD1), Daudau\_9 (BD2), Dexers\_8 (BD3), Diane\_9 (BD2), Dwayne\_9 (BD1), ELB20\_08 (BD2), Eddasa\_10 (BD1), Ejemplo\_9 (BD1), ElGato\_10 (BD3), Emaanora\_11 (BD1), EnochSoames\_10 (BD1), Esperer\_9 (BD1), GMA4\_5 (singleton), GirlDinner\_9 (BD2), Goby\_9 (BD1), Godpower\_10 (BD1), GreenWeasel\_11 (BD4), Haizum\_9 (BD2), Hippo\_9 (BD1), Hydra\_11 (BD1), Indigo\_9 (BD1), Issmi\_10 (BD2), Itza\_9 (BD6), Izzy\_10 (BD1), Janus\_10 (BD2), Jash\_10 (BD1), Jevington\_11 (BD2), Jhitchelle\_8 (BD3), Kaine\_9 (BD3), Katalie\_10 (BD1), Lannister\_10 (BD1), Legacy\_9 (BD1), Leviticus\_9 (BD1), Lika\_9 (BD1), Loofah\_10 (BD2), Lorelei\_9 (BD1), Maneekul\_9 (BD1), Marav\_12 (BD2), Nabi\_9 (BD1), Nanodon\_11 (BD1), Nerdos\_9 (BD1), Nishikigoi\_9 (BD2), Oliynyk\_10 (BD1), Omar\_10 (BD2), Ozzie\_9 (BD1), OzzyJ\_10 (BD1), Pablito\_9 (BD2), Paedore\_9 (BD2), Paolo\_11 (BD2), Pavo\_10 (BD3), Phettuccine\_9 (BD1), Provolone\_10 (BD3), Puginator\_11 (BD2), R4\_9 (BD2), Rana\_9 (BD1), RedBear\_11 (BD1), Rusticus\_10 (BD1), Saftant\_9 (BD3), SarahRose\_9 (BD1), Snorlax\_9 (BD1), South40\_10 (BD1), Speedwell\_14 (BD3), SqueakyClean\_10 (BD2), Sudan\_9 (BD3), Sujidade\_10 (BD1), SunkenRoot\_11 (BD3), SunsetPointe\_9 (BD1), Superstar\_11 (BD2), TagePhighter\_10 (BD1), Tefunt\_9 (BD2), Thestral\_10 (BD2), TinaBelcher\_9 (BD2), Toma\_9 (BD1), Triste\_9 (BD1), Triumph\_11 (BD2), TuanPN\_9 (BD1), Unstoppable\_9 (BD1), Urza\_9 (BD6), Vanseggelen\_12 (BD3), Verabelle\_10 (BD3), Verse\_9 (BD3), VieEnRose\_9 (BD6), Werner\_9 (BD1), Whatever\_9 (BD1), Yasdnil\_9 (BD1), Yosif\_10 (BD3), Zainub\_11 (BD2), ZamZam\_9 (BD3), Zemlya\_10 (BD1), phiCAM\_10 (BD3), phiHau3\_11 (BD4),

#### Start 25:

- Found in 52 of 179 ( 29.1% ) of genes in pham
- Manual Annotations of this start: 37 of 155

- Called 100.0% of time when present
- Phage (with cluster) where this start called: AdaS\_6 (AY), Aikyam\_6 (AY), Anekin\_5 (AY), Auxilium\_6 (AY), BasketStar\_6 (AY), BenchScraper\_6 (AY), Bhageatrice\_8 (AY), BillyTP\_6 (AY), BlueShadow\_6 (AY), CookieBear\_6 (AY), CosmicBrownie\_5 (AY), Crescenzo\_6 (AY), DarwinJr\_9 (AY), Ding\_6 (AY), EvePickles\_6 (AY), Faja\_6 (AY), Globfish\_6 (AY), Gorpy\_6 (AY), GumGum\_6 (AY), Hestia\_6 (AY), Hillester\_6 (AY), Isolde\_7 (AY), JakeTheSnake\_6 (AY), JellyBread\_6 (AY), Kabloowy\_6 (AY), Lasker\_6 (AY), Lawnathon\_6 (AY), LeBruni\_6 (AY), MUWow\_5 (AY), Mapleville\_5 (AY), MaterMagnus\_6 (AY), MidnightRain\_6 (AY), MurphyJoseph\_6 (AY), NewKitty\_7 (AY), Nyilah\_5 (AY), Persistence\_5 (AY), Phrank15\_5 (AY), RadFad\_6 (AY), Raphaella\_6 (AY), Richie\_6 (AY), Sakai\_6 (AY), Sashimi\_7 (AY), Satrap\_6 (AY), Shukran\_6 (AY), SonDevVon\_5 (AY), SpicyFrank\_6 (AY), Sporco\_7 (AY), ThayneTheZag\_6 (AY), Tiff81\_7 (AY), Vopal\_7 (AY), Windest\_7 (AY), YoungHarleezy\_6 (AY),

#### Start 28:

- Found in 1 of 179 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 1 of 155
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Juicebox\_7 (singleton),

#### Start 30:

- Found in 1 of 179 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 1 of 155
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Footloose\_5 (singleton),

### Summary by clusters:

There are 8 clusters represented in this pham: singleton, EO, BD4, BD6, BD1, BD3, BD2, AY,

Info for manual annotations of cluster AY:

- Start number 20 was manually annotated 1 time for cluster AY.
- Start number 25 was manually annotated 37 times for cluster AY.

Info for manual annotations of cluster BD1:

- Start number 23 was manually annotated 55 times for cluster BD1.

Info for manual annotations of cluster BD2:

- Start number 21 was manually annotated 3 times for cluster BD2.
- Start number 23 was manually annotated 30 times for cluster BD2.

Info for manual annotations of cluster BD3:

- Start number 23 was manually annotated 15 times for cluster BD3.

Info for manual annotations of cluster BD4:

- Start number 23 was manually annotated 3 times for cluster BD4.

Info for manual annotations of cluster BD6:

- Start number 23 was manually annotated 4 times for cluster BD6.

Info for manual annotations of cluster EO:

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

**Gene Information:**

Gene: Aaronocolus\_9 Start: 6636, Stop: 7181, Start Num: 23

Candidate Starts for Aaronocolus\_9:

(Start: 23 @6636 has 107 MA's), (56, 6960), (71, 7083),

Gene: AbbyDaisy\_6 Start: 4441, Stop: 5022, Start Num: 20

Candidate Starts for AbbyDaisy\_6:

(8, 4336), (Start: 20 @4441 has 1 MA's), (26, 4489), (31, 4537), (44, 4651), (60, 4813),

Gene: AdaS\_6 Start: 4952, Stop: 5458, Start Num: 25

Candidate Starts for AdaS\_6:

(24, 4949), (Start: 25 @4952 has 37 MA's), (62, 5261), (65, 5288), (67, 5312),

Gene: Aikyam\_6 Start: 4944, Stop: 5444, Start Num: 25

Candidate Starts for Aikyam\_6:

(Start: 25 @4944 has 37 MA's), (65, 5277),

Gene: Alsaber\_10 Start: 6736, Stop: 7278, Start Num: 23

Candidate Starts for Alsaber\_10:

(Start: 23 @6736 has 107 MA's), (27, 6778), (36, 6859), (56, 7060), (57, 7063), (59, 7072), (77, 7237),

Gene: Alvy\_11 Start: 6598, Stop: 7116, Start Num: 23

Candidate Starts for Alvy\_11:

(2, 6286), (3, 6292), (4, 6295), (7, 6466), (Start: 21 @6592 has 3 MA's), (Start: 23 @6598 has 107 MA's), (29, 6652), (40, 6724), (42, 6736), (59, 6910), (70, 7012),

Gene: Amela\_9 Start: 6795, Stop: 7334, Start Num: 23

Candidate Starts for Amela\_9:

(Start: 23 @6795 has 107 MA's), (27, 6837), (56, 7116), (57, 7119), (59, 7128), (77, 7293),

Gene: Amethyst\_9 Start: 6407, Stop: 6937, Start Num: 23

Candidate Starts for Amethyst\_9:

(7, 6275), (Start: 21 @6401 has 3 MA's), (Start: 23 @6407 has 107 MA's), (43, 6569), (59, 6728),

Gene: Andris\_9 Start: 6465, Stop: 6998, Start Num: 23

Candidate Starts for Andris\_9:

(2, 6153), (3, 6159), (4, 6162), (7, 6333), (Start: 23 @6465 has 107 MA's), (35, 6570), (42, 6615), (59, 6789),

Gene: Anekin\_5 Start: 5066, Stop: 5599, Start Num: 25

Candidate Starts for Anekin\_5:

(19, 5030), (24, 5063), (Start: 25 @5066 has 37 MA's), (66, 5453),

Gene: Animus\_10 Start: 6815, Stop: 7348, Start Num: 23

Candidate Starts for Animus\_10:

(Start: 21 @6809 has 3 MA's), (Start: 23 @6815 has 107 MA's), (42, 6965), (59, 7139), (81, 7319),

Gene: Arianna\_7 Start: 6234, Stop: 6929, Start Num: 10

Candidate Starts for Arianna\_7:

(Start: 10 @6234 has 4 MA's), (Start: 15 @6291 has 1 MA's), (Start: 23 @6339 has 107 MA's), (38, 6483), (52, 6624), (66, 6744), (82, 6897),

Gene: Asten\_9 Start: 6604, Stop: 7146, Start Num: 23

Candidate Starts for Asten\_9:

(Start: 23 @6604 has 107 MA's), (37, 6733), (71, 7048), (81, 7117),

Gene: Attoomi\_6 Start: 5006, Stop: 5563, Start Num: 15

Candidate Starts for Attoomi\_6:

(Start: 15 @5006 has 1 MA's), (41, 5189), (46, 5243), (50, 5306), (53, 5318), (76, 5510),

Gene: Auxilium\_6 Start: 4952, Stop: 5458, Start Num: 25

Candidate Starts for Auxilium\_6:

(24, 4949), (Start: 25 @4952 has 37 MA's), (62, 5261), (65, 5288), (67, 5312),

Gene: Axiom\_10 Start: 6474, Stop: 7007, Start Num: 23

Candidate Starts for Axiom\_10:

(2, 6162), (3, 6168), (4, 6171), (7, 6342), (Start: 21 @6468 has 3 MA's), (Start: 23 @6474 has 107 MA's), (59, 6798),

Gene: BarryBee\_11 Start: 6604, Stop: 7149, Start Num: 23

Candidate Starts for BarryBee\_11:

(Start: 23 @6604 has 107 MA's), (27, 6646), (71, 7051),

Gene: BartholomewSD\_11 Start: 6598, Stop: 7116, Start Num: 23

Candidate Starts for BartholomewSD\_11:

(2, 6286), (3, 6292), (4, 6295), (7, 6466), (Start: 21 @6592 has 3 MA's), (Start: 23 @6598 has 107 MA's), (29, 6652), (40, 6724), (42, 6736), (59, 6910), (70, 7012),

Gene: BasketStar\_6 Start: 4991, Stop: 5497, Start Num: 25

Candidate Starts for BasketStar\_6:

(14, 4892), (24, 4988), (Start: 25 @4991 has 37 MA's), (62, 5300), (65, 5327), (67, 5351),

Gene: BeardedLady\_10 Start: 6883, Stop: 7428, Start Num: 23

Candidate Starts for BeardedLady\_10:

(Start: 23 @6883 has 107 MA's), (56, 7207), (71, 7330),

Gene: BenchScraper\_6 Start: 4952, Stop: 5458, Start Num: 25

Candidate Starts for BenchScraper\_6:

(24, 4949), (Start: 25 @4952 has 37 MA's), (64, 5285), (65, 5288), (67, 5312),

Gene: Bhageatrice\_8 Start: 6147, Stop: 6653, Start Num: 25

Candidate Starts for Bhageatrice\_8:

(24, 6144), (Start: 25 @6147 has 37 MA's), (57, 6429), (59, 6438), (67, 6507),

Gene: BillyTP\_6 Start: 4946, Stop: 5452, Start Num: 25

Candidate Starts for BillyTP\_6:

(24, 4943), (Start: 25 @4946 has 37 MA's), (62, 5255), (65, 5282), (67, 5306),

Gene: BlueShadow\_6 Start: 4944, Stop: 5447, Start Num: 25

Candidate Starts for BlueShadow\_6:

(Start: 25 @4944 has 37 MA's), (65, 5277),

Gene: Bovely\_9 Start: 6642, Stop: 7187, Start Num: 23

Candidate Starts for Bovely\_9:

(Start: 23 @6642 has 107 MA's), (56, 6966), (71, 7089),

Gene: Bowden\_10 Start: 6509, Stop: 7030, Start Num: 23

Candidate Starts for Bowden\_10:

(3, 6203), (4, 6206), (7, 6377), (Start: 21 @6503 has 3 MA's), (Start: 23 @6509 has 107 MA's), (42, 6650), (59, 6824),

Gene: Brataylor\_10 Start: 6607, Stop: 7152, Start Num: 23

Candidate Starts for Brataylor\_10:

(Start: 23 @6607 has 107 MA's), (27, 6649), (71, 7054), (81, 7123),

Gene: BroPlease\_10 Start: 6713, Stop: 7237, Start Num: 23

Candidate Starts for BroPlease\_10:

(Start: 21 @6707 has 3 MA's), (Start: 23 @6713 has 107 MA's), (46, 6905), (51, 6971), (59, 7028),

Gene: BryanRecycles\_10 Start: 6796, Stop: 7344, Start Num: 23

Candidate Starts for BryanRecycles\_10:

(Start: 23 @6796 has 107 MA's), (54, 7102), (56, 7123), (71, 7246),

Gene: Caelum\_10 Start: 6369, Stop: 6884, Start Num: 21

Candidate Starts for Caelum\_10:

(1, 5997), (2, 6063), (3, 6069), (4, 6072), (7, 6243), (Start: 21 @6369 has 3 MA's), (Start: 23 @6375 has 107 MA's), (42, 6504), (59, 6678),

Gene: Caliburn\_9 Start: 6616, Stop: 7161, Start Num: 23

Candidate Starts for Caliburn\_9:

(Start: 23 @6616 has 107 MA's), (56, 6940), (71, 7063),

Gene: Celery\_11 Start: 6699, Stop: 7238, Start Num: 23

Candidate Starts for Celery\_11:

(7, 6564), (Start: 23 @6699 has 107 MA's), (27, 6741), (36, 6819), (56, 7020), (57, 7023), (77, 7197),

Gene: Celeste\_9 Start: 6606, Stop: 7151, Start Num: 23

Candidate Starts for Celeste\_9:

(Start: 23 @6606 has 107 MA's), (71, 7053), (81, 7122),

Gene: Celia\_9 Start: 6927, Stop: 7451, Start Num: 23

Candidate Starts for Celia\_9:

(3, 6624), (4, 6627), (7, 6798), (Start: 23 @6927 has 107 MA's), (45, 7092), (55, 7227), (80, 7419),

Gene: Chucky\_9 Start: 6605, Stop: 7150, Start Num: 23

Candidate Starts for Chucky\_9:

(Start: 23 @6605 has 107 MA's), (27, 6647), (71, 7052), (81, 7121),

Gene: Colleen\_7 Start: 6234, Stop: 6929, Start Num: 10

Candidate Starts for Colleen\_7:

(Start: 10 @6234 has 4 MA's), (Start: 15 @6291 has 1 MA's), (Start: 23 @6339 has 107 MA's), (38, 6483), (52, 6624), (66, 6744), (82, 6897),

Gene: Conan\_10 Start: 6446, Stop: 6988, Start Num: 23

Candidate Starts for Conan\_10:

(Start: 23 @6446 has 107 MA's), (36, 6569), (56, 6770), (57, 6773), (59, 6782), (77, 6947),

Gene: CookieBear\_6 Start: 4952, Stop: 5458, Start Num: 25

Candidate Starts for CookieBear\_6:

(24, 4949), (Start: 25 @4952 has 37 MA's), (62, 5261), (65, 5288), (67, 5312),

Gene: CosmicBrownie\_5 Start: 5069, Stop: 5575, Start Num: 25

Candidate Starts for CosmicBrownie\_5:

(24, 5066), (Start: 25 @5069 has 37 MA's), (62, 5378), (65, 5405), (67, 5429),

Gene: Crescenzo\_6 Start: 4994, Stop: 5527, Start Num: 25

Candidate Starts for Crescenzo\_6:

(19, 4958), (24, 4991), (Start: 25 @4994 has 37 MA's), (66, 5381),

Gene: Danzina\_10 Start: 6804, Stop: 7349, Start Num: 23

Candidate Starts for Danzina\_10:

(Start: 23 @6804 has 107 MA's), (69, 7239), (71, 7251), (81, 7320),

Gene: DarwinJr\_9 Start: 6297, Stop: 6830, Start Num: 25

Candidate Starts for DarwinJr\_9:

(19, 6261), (24, 6294), (Start: 25 @6297 has 37 MA's), (66, 6684),

Gene: Dattran\_10 Start: 6605, Stop: 7150, Start Num: 23

Candidate Starts for Dattran\_10:

(Start: 23 @6605 has 107 MA's), (69, 7040), (71, 7052), (81, 7121),

Gene: Daudau\_9 Start: 6400, Stop: 6954, Start Num: 23

Candidate Starts for Daudau\_9:

(7, 6268), (Start: 21 @6394 has 3 MA's), (Start: 23 @6400 has 107 MA's), (42, 6571), (49, 6667),

Gene: Dexers\_8 Start: 6439, Stop: 6981, Start Num: 23

Candidate Starts for Dexers\_8:

(Start: 23 @6439 has 107 MA's), (56, 6763), (57, 6766), (59, 6775), (77, 6940),

Gene: Diane\_9 Start: 6409, Stop: 6939, Start Num: 23

Candidate Starts for Diane\_9:

(7, 6277), (Start: 21 @6403 has 3 MA's), (Start: 23 @6409 has 107 MA's), (43, 6571), (59, 6730), (81, 6910),

Gene: Ding\_6 Start: 4943, Stop: 5470, Start Num: 25

Candidate Starts for Ding\_6:

(24, 4940), (Start: 25 @4943 has 37 MA's), (66, 5321),

Gene: Dwayne\_9 Start: 6605, Stop: 7150, Start Num: 23

Candidate Starts for Dwayne\_9:

(Start: 23 @6605 has 107 MA's), (27, 6647), (71, 7052), (81, 7121),

Gene: ELB20\_08 Start: 6466, Stop: 6990, Start Num: 23

Candidate Starts for ELB20\_08:

(2, 6154), (3, 6160), (4, 6163), (7, 6334), (Start: 23 @6466 has 107 MA's), (42, 6610), (59, 6784), (79, 6952),

Gene: Eddasa\_10 Start: 6796, Stop: 7344, Start Num: 23

Candidate Starts for Eddasa\_10:

(Start: 23 @6796 has 107 MA's), (54, 7102), (56, 7123), (71, 7246),

Gene: Ejemplo\_9 Start: 6608, Stop: 7153, Start Num: 23

Candidate Starts for Ejemplo\_9:

(Start: 23 @6608 has 107 MA's), (71, 7055), (81, 7124),

Gene: ElGato\_10 Start: 6449, Stop: 6991, Start Num: 23

Candidate Starts for ElGato\_10:

(Start: 23 @6449 has 107 MA's), (36, 6572), (56, 6773), (57, 6776), (59, 6785), (77, 6950),

Gene: Emaanora\_11 Start: 6604, Stop: 7149, Start Num: 23

Candidate Starts for Emaanora\_11:

(Start: 23 @6604 has 107 MA's), (27, 6646), (71, 7051), (81, 7120),

Gene: EnochSoames\_10 Start: 6792, Stop: 7340, Start Num: 23

Candidate Starts for EnochSoames\_10:

(Start: 23 @6792 has 107 MA's), (54, 7098), (56, 7119), (71, 7242),

Gene: Esperer\_9 Start: 6636, Stop: 7181, Start Num: 23

Candidate Starts for Esperer\_9:

(Start: 23 @6636 has 107 MA's), (56, 6960), (71, 7083),

Gene: EvePickles\_6 Start: 4997, Stop: 5500, Start Num: 25

Candidate Starts for EvePickles\_6:

(24, 4994), (Start: 25 @4997 has 37 MA's), (59, 5288), (67, 5357),

Gene: Faja\_6 Start: 4944, Stop: 5444, Start Num: 25

Candidate Starts for Faja\_6:

(Start: 25 @4944 has 37 MA's), (65, 5277),

Gene: Footloose\_5 Start: 4342, Stop: 4824, Start Num: 30

Candidate Starts for Footloose\_5:

(Start: 30 @4342 has 1 MA's), (33, 4369), (53, 4570), (56, 4594), (61, 4612), (68, 4696), (80, 4789),

Gene: GMA4\_5 Start: 5343, Stop: 5924, Start Num: 23

Candidate Starts for GMA4\_5:

(12, 5244), (17, 5307), (Start: 23 @5343 has 107 MA's), (38, 5499), (58, 5691), (72, 5826), (74, 5835),

Gene: GirlDinner\_9 Start: 6478, Stop: 7011, Start Num: 23

Candidate Starts for GirlDinner\_9:

(Start: 21 @6472 has 3 MA's), (Start: 23 @6478 has 107 MA's), (42, 6628), (59, 6802), (81, 6982),

Gene: Globfish\_6 Start: 4997, Stop: 5503, Start Num: 25

Candidate Starts for Globfish\_6:

(24, 4994), (Start: 25 @4997 has 37 MA's), (64, 5330), (65, 5333), (67, 5357),

Gene: Goby\_9 Start: 6605, Stop: 7150, Start Num: 23

Candidate Starts for Goby\_9:

(Start: 23 @6605 has 107 MA's), (69, 7040), (71, 7052), (81, 7121),

Gene: Godpower\_10 Start: 6608, Stop: 7147, Start Num: 23

Candidate Starts for Godpower\_10:  
(Start: 23 @6608 has 107 MA's), (71, 7049), (81, 7118),

Gene: Gorpy\_6 Start: 4946, Stop: 5452, Start Num: 25  
Candidate Starts for Gorpy\_6:  
(24, 4943), (Start: 25 @4946 has 37 MA's), (57, 5228), (59, 5237), (67, 5306),

Gene: GreenWeasel\_11 Start: 6722, Stop: 7246, Start Num: 23  
Candidate Starts for GreenWeasel\_11:  
(Start: 21 @6716 has 3 MA's), (Start: 23 @6722 has 107 MA's), (46, 6914), (51, 6980), (59, 7037),

Gene: GumGum\_6 Start: 4998, Stop: 5531, Start Num: 25  
Candidate Starts for GumGum\_6:  
(19, 4962), (24, 4995), (Start: 25 @4998 has 37 MA's), (66, 5385),

Gene: Haizum\_9 Start: 6438, Stop: 6968, Start Num: 23  
Candidate Starts for Haizum\_9:  
(7, 6306), (Start: 21 @6432 has 3 MA's), (Start: 23 @6438 has 107 MA's), (43, 6600), (59, 6759), (81, 6939),

Gene: Hank144\_10 Start: 6746, Stop: 7285, Start Num: 21  
Candidate Starts for Hank144\_10:  
(Start: 21 @6746 has 3 MA's), (Start: 23 @6752 has 107 MA's), (42, 6905), (59, 7079),

Gene: Hestia\_6 Start: 5060, Stop: 5593, Start Num: 25  
Candidate Starts for Hestia\_6:  
(24, 5057), (Start: 25 @5060 has 37 MA's), (48, 5294), (66, 5447),

Gene: Hillester\_6 Start: 4944, Stop: 5447, Start Num: 25  
Candidate Starts for Hillester\_6:  
(Start: 25 @4944 has 37 MA's), (65, 5277),

Gene: Hippo\_9 Start: 6604, Stop: 7149, Start Num: 23  
Candidate Starts for Hippo\_9:  
(Start: 23 @6604 has 107 MA's), (27, 6646), (71, 7051), (81, 7120),

Gene: Hydra\_11 Start: 7173, Stop: 7718, Start Num: 23  
Candidate Starts for Hydra\_11:  
(Start: 23 @7173 has 107 MA's), (56, 7497), (71, 7620),

Gene: Indigo\_9 Start: 6636, Stop: 7181, Start Num: 23  
Candidate Starts for Indigo\_9:  
(Start: 23 @6636 has 107 MA's), (56, 6960), (71, 7083),

Gene: Isolde\_7 Start: 4984, Stop: 5517, Start Num: 25  
Candidate Starts for Isolde\_7:  
(13, 4873), (19, 4948), (24, 4981), (Start: 25 @4984 has 37 MA's), (48, 5218), (66, 5371),

Gene: Issmi\_10 Start: 6720, Stop: 7238, Start Num: 23  
Candidate Starts for Issmi\_10:  
(Start: 23 @6720 has 107 MA's), (42, 6858), (49, 6954), (59, 7032),

Gene: Itza\_9 Start: 6850, Stop: 7374, Start Num: 23

Candidate Starts for Itza\_9:  
(3, 6547), (4, 6550), (7, 6721), (Start: 23 @6850 has 107 MA's), (45, 7015), (55, 7150), (80, 7342),

Gene: Izzy\_10 Start: 6843, Stop: 7391, Start Num: 23  
Candidate Starts for Izzy\_10:  
(Start: 23 @6843 has 107 MA's), (54, 7149), (56, 7170), (71, 7293),

Gene: JakeTheSnake\_6 Start: 4953, Stop: 5486, Start Num: 25  
Candidate Starts for JakeTheSnake\_6:  
(19, 4917), (24, 4950), (Start: 25 @4953 has 37 MA's), (48, 5187), (66, 5340),

Gene: Janus\_10 Start: 6815, Stop: 7348, Start Num: 23  
Candidate Starts for Janus\_10:  
(Start: 21 @6809 has 3 MA's), (Start: 23 @6815 has 107 MA's), (42, 6965), (59, 7139), (81, 7319),

Gene: Jash\_10 Start: 6796, Stop: 7344, Start Num: 23  
Candidate Starts for Jash\_10:  
(Start: 23 @6796 has 107 MA's), (54, 7102), (56, 7123), (71, 7246),

Gene: JellyBread\_6 Start: 4945, Stop: 5451, Start Num: 25  
Candidate Starts for JellyBread\_6:  
(24, 4942), (Start: 25 @4945 has 37 MA's), (62, 5254), (65, 5281), (67, 5305),

Gene: Jevington\_11 Start: 7004, Stop: 7528, Start Num: 23  
Candidate Starts for Jevington\_11:  
(2, 6692), (3, 6698), (4, 6701), (7, 6872), (Start: 23 @7004 has 107 MA's), (42, 7148), (59, 7322), (70, 7424),

Gene: Jhitchelle\_8 Start: 6386, Stop: 6919, Start Num: 23  
Candidate Starts for Jhitchelle\_8:  
(9, 6278), (11, 6284), (Start: 23 @6386 has 107 MA's), (27, 6428), (56, 6701), (57, 6704), (77, 6878),

Gene: Juicebox\_7 Start: 6040, Stop: 6549, Start Num: 28  
Candidate Starts for Juicebox\_7:  
(16, 5944), (18, 5959), (Start: 21 @5983 has 3 MA's), (22, 5986), (Start: 28 @6040 has 1 MA's), (32, 6079), (39, 6142), (45, 6181), (73, 6466), (75, 6472),

Gene: Kabloowy\_6 Start: 4995, Stop: 5528, Start Num: 25  
Candidate Starts for Kabloowy\_6:  
(7, 4842), (19, 4959), (Start: 25 @4995 has 37 MA's), (48, 5229), (59, 5316), (66, 5382),

Gene: Kaine\_9 Start: 6439, Stop: 6981, Start Num: 23  
Candidate Starts for Kaine\_9:  
(Start: 23 @6439 has 107 MA's), (27, 6481), (56, 6763), (57, 6766), (59, 6775), (77, 6940),

Gene: Katalie\_10 Start: 6876, Stop: 7421, Start Num: 23  
Candidate Starts for Katalie\_10:  
(Start: 23 @6876 has 107 MA's), (27, 6918), (71, 7323), (81, 7392),

Gene: Lannister\_10 Start: 6609, Stop: 7163, Start Num: 23  
Candidate Starts for Lannister\_10:  
(Start: 23 @6609 has 107 MA's), (56, 6942), (69, 7053), (71, 7065),

Gene: Lasker\_6 Start: 4945, Stop: 5451, Start Num: 25  
Candidate Starts for Lasker\_6:  
(24, 4942), (Start: 25 @4945 has 37 MA's), (62, 5254), (65, 5281), (67, 5305),

Gene: Lawnathon\_6 Start: 4996, Stop: 5529, Start Num: 25  
Candidate Starts for Lawnathon\_6:  
(19, 4960), (24, 4993), (Start: 25 @4996 has 37 MA's), (48, 5230), (59, 5317), (66, 5383),

Gene: LeBruni\_6 Start: 4996, Stop: 5502, Start Num: 25  
Candidate Starts for LeBruni\_6:  
(24, 4993), (Start: 25 @4996 has 37 MA's), (59, 5287), (67, 5356),

Gene: Legacy\_9 Start: 6616, Stop: 7161, Start Num: 23  
Candidate Starts for Legacy\_9:  
(Start: 23 @6616 has 107 MA's), (56, 6940), (71, 7063),

Gene: Leviticus\_9 Start: 6636, Stop: 7181, Start Num: 23  
Candidate Starts for Leviticus\_9:  
(Start: 23 @6636 has 107 MA's), (56, 6960), (71, 7083),

Gene: Lika\_9 Start: 6609, Stop: 7148, Start Num: 23  
Candidate Starts for Lika\_9:  
(Start: 23 @6609 has 107 MA's), (71, 7050), (81, 7119),

Gene: Loofah\_10 Start: 6516, Stop: 7034, Start Num: 23  
Candidate Starts for Loofah\_10:  
(2, 6204), (3, 6210), (4, 6213), (7, 6384), (Start: 23 @6516 has 107 MA's), (40, 6642), (42, 6654), (49, 6750), (59, 6828),

Gene: Lorelei\_9 Start: 6602, Stop: 7147, Start Num: 23  
Candidate Starts for Lorelei\_9:  
(Start: 23 @6602 has 107 MA's), (27, 6644), (69, 7037), (71, 7049), (81, 7118),

Gene: MUWow\_5 Start: 5024, Stop: 5530, Start Num: 25  
Candidate Starts for MUWow\_5:  
(24, 5021), (Start: 25 @5024 has 37 MA's), (62, 5333), (65, 5360), (67, 5384),

Gene: Maneekul\_9 Start: 6607, Stop: 7152, Start Num: 23  
Candidate Starts for Maneekul\_9:  
(Start: 23 @6607 has 107 MA's), (71, 7054), (81, 7123),

Gene: Mapleville\_5 Start: 5066, Stop: 5599, Start Num: 25  
Candidate Starts for Mapleville\_5:  
(19, 5030), (24, 5063), (Start: 25 @5066 has 37 MA's), (48, 5300), (59, 5387), (66, 5453),

Gene: Marav\_12 Start: 7354, Stop: 7878, Start Num: 23  
Candidate Starts for Marav\_12:  
(7, 7222), (Start: 23 @7354 has 107 MA's), (42, 7498), (59, 7672), (70, 7774),

Gene: MaterMagnus\_6 Start: 4944, Stop: 5444, Start Num: 25  
Candidate Starts for MaterMagnus\_6:  
(Start: 25 @4944 has 37 MA's), (65, 5277),

Gene: MidnightRain\_6 Start: 4944, Stop: 5447, Start Num: 25

Candidate Starts for MidnightRain\_6:

(Start: 25 @4944 has 37 MA's), (65, 5277),

Gene: MurphyJoseph\_6 Start: 4949, Stop: 5455, Start Num: 25

Candidate Starts for MurphyJoseph\_6:

(24, 4946), (Start: 25 @4949 has 37 MA's), (57, 5231), (59, 5240), (67, 5309),

Gene: Nabi\_9 Start: 6602, Stop: 7147, Start Num: 23

Candidate Starts for Nabi\_9:

(Start: 23 @6602 has 107 MA's), (27, 6644), (69, 7037), (71, 7049), (81, 7118),

Gene: Nanodon\_11 Start: 6798, Stop: 7337, Start Num: 23

Candidate Starts for Nanodon\_11:

(Start: 23 @6798 has 107 MA's), (27, 6840), (71, 7239), (81, 7308),

Gene: Nerdos\_9 Start: 6636, Stop: 7181, Start Num: 23

Candidate Starts for Nerdos\_9:

(Start: 23 @6636 has 107 MA's), (56, 6960), (71, 7083),

Gene: NewKitty\_7 Start: 5164, Stop: 5673, Start Num: 25

Candidate Starts for NewKitty\_7:

(14, 5065), (24, 5161), (Start: 25 @5164 has 37 MA's), (65, 5503), (67, 5527),

Gene: Nishikigoi\_9 Start: 6438, Stop: 6968, Start Num: 23

Candidate Starts for Nishikigoi\_9:

(7, 6306), (Start: 21 @6432 has 3 MA's), (Start: 23 @6438 has 107 MA's), (43, 6600), (59, 6759), (81, 6939),

Gene: Nyilah\_5 Start: 5021, Stop: 5527, Start Num: 25

Candidate Starts for Nyilah\_5:

(5, 4766), (6, 4820), (24, 5018), (Start: 25 @5021 has 37 MA's), (57, 5303), (59, 5312), (67, 5381), (78, 5489),

Gene: Oliynyk\_10 Start: 6796, Stop: 7344, Start Num: 23

Candidate Starts for Oliynyk\_10:

(Start: 23 @6796 has 107 MA's), (54, 7102), (56, 7123), (71, 7246),

Gene: Omar\_10 Start: 6663, Stop: 7190, Start Num: 23

Candidate Starts for Omar\_10:

(7, 6531), (Start: 21 @6657 has 3 MA's), (Start: 23 @6663 has 107 MA's), (40, 6795), (42, 6807), (47, 6873), (59, 6981),

Gene: Ozzie\_9 Start: 6616, Stop: 7161, Start Num: 23

Candidate Starts for Ozzie\_9:

(Start: 23 @6616 has 107 MA's), (56, 6940), (71, 7063),

Gene: OzzyJ\_10 Start: 6605, Stop: 7147, Start Num: 23

Candidate Starts for OzzyJ\_10:

(Start: 23 @6605 has 107 MA's), (37, 6734), (71, 7049), (81, 7118),

Gene: Pablito\_9 Start: 6493, Stop: 7029, Start Num: 23

Candidate Starts for Pablito\_9:

(2, 6181), (3, 6187), (4, 6190), (7, 6361), (Start: 21 @6487 has 3 MA's), (Start: 23 @6493 has 107 MA's), (59, 6817),

Gene: Paedore\_9 Start: 6516, Stop: 7034, Start Num: 23

Candidate Starts for Paedore\_9:

(2, 6204), (3, 6210), (4, 6213), (7, 6384), (Start: 23 @6516 has 107 MA's), (40, 6642), (42, 6654), (49, 6750), (59, 6828),

Gene: Paolo\_11 Start: 7046, Stop: 7567, Start Num: 23

Candidate Starts for Paolo\_11:

(2, 6734), (3, 6740), (4, 6743), (7, 6914), (Start: 23 @7046 has 107 MA's), (42, 7187), (59, 7361), (70, 7463),

Gene: Pavo\_10 Start: 6719, Stop: 7261, Start Num: 23

Candidate Starts for Pavo\_10:

(Start: 23 @6719 has 107 MA's), (36, 6842), (56, 7043), (57, 7046), (59, 7055), (77, 7220),

Gene: Persistence\_5 Start: 5021, Stop: 5554, Start Num: 25

Candidate Starts for Persistence\_5:

(19, 4985), (24, 5018), (Start: 25 @5021 has 37 MA's), (48, 5255), (66, 5408),

Gene: Phettuccine\_9 Start: 6636, Stop: 7181, Start Num: 23

Candidate Starts for Phettuccine\_9:

(Start: 23 @6636 has 107 MA's), (56, 6960), (71, 7083),

Gene: Phrank15\_5 Start: 5067, Stop: 5600, Start Num: 25

Candidate Starts for Phrank15\_5:

(19, 5031), (24, 5064), (Start: 25 @5067 has 37 MA's), (43, 5235), (59, 5388), (66, 5454),

Gene: Poushou\_7 Start: 6234, Stop: 6929, Start Num: 10

Candidate Starts for Poushou\_7:

(Start: 10 @6234 has 4 MA's), (Start: 15 @6291 has 1 MA's), (Start: 23 @6339 has 107 MA's), (38, 6483), (52, 6624), (66, 6744), (82, 6897),

Gene: Provolone\_10 Start: 6449, Stop: 6991, Start Num: 23

Candidate Starts for Provolone\_10:

(Start: 23 @6449 has 107 MA's), (36, 6572), (56, 6773), (57, 6776), (59, 6785), (77, 6950),

Gene: Puginator\_11 Start: 6992, Stop: 7513, Start Num: 23

Candidate Starts for Puginator\_11:

(2, 6680), (3, 6686), (4, 6689), (7, 6860), (Start: 23 @6992 has 107 MA's), (42, 7133), (59, 7307), (70, 7409),

Gene: R4\_9 Start: 6477, Stop: 7001, Start Num: 23

Candidate Starts for R4\_9:

(2, 6165), (3, 6171), (4, 6174), (7, 6345), (Start: 23 @6477 has 107 MA's), (42, 6621), (59, 6795), (79, 6963),

Gene: RadFad\_6 Start: 4944, Stop: 5447, Start Num: 25

Candidate Starts for RadFad\_6:

(Start: 25 @4944 has 37 MA's), (65, 5277),

Gene: Rana\_9 Start: 6602, Stop: 7147, Start Num: 23

Candidate Starts for Rana\_9:

(Start: 23 @6602 has 107 MA's), (27, 6644), (69, 7037), (71, 7049), (81, 7118),

Gene: Raphaella\_6 Start: 4952, Stop: 5458, Start Num: 25

Candidate Starts for Raphaella\_6:

(24, 4949), (Start: 25 @4952 has 37 MA's), (62, 5261), (65, 5288), (67, 5312),

Gene: Raqqa\_6 Start: 4752, Stop: 5333, Start Num: 20

Candidate Starts for Raqqa\_6:

(Start: 20 @4752 has 1 MA's), (26, 4800), (31, 4848), (44, 4962), (60, 5124),

Gene: RedBear\_11 Start: 6876, Stop: 7421, Start Num: 23

Candidate Starts for RedBear\_11:

(Start: 23 @6876 has 107 MA's), (27, 6918), (71, 7323), (81, 7392),

Gene: Richie\_6 Start: 4952, Stop: 5458, Start Num: 25

Candidate Starts for Richie\_6:

(24, 4949), (Start: 25 @4952 has 37 MA's), (62, 5261), (65, 5288), (67, 5312),

Gene: Rusticus\_10 Start: 6796, Stop: 7344, Start Num: 23

Candidate Starts for Rusticus\_10:

(Start: 23 @6796 has 107 MA's), (54, 7102), (56, 7123), (71, 7246),

Gene: Saftant\_9 Start: 6729, Stop: 7268, Start Num: 23

Candidate Starts for Saftant\_9:

(7, 6594), (Start: 23 @6729 has 107 MA's), (56, 7050), (57, 7053), (59, 7062), (77, 7227),

Gene: Sakai\_6 Start: 4946, Stop: 5452, Start Num: 25

Candidate Starts for Sakai\_6:

(24, 4943), (Start: 25 @4946 has 37 MA's), (57, 5228), (59, 5237), (67, 5306),

Gene: SarahRose\_9 Start: 6604, Stop: 7149, Start Num: 23

Candidate Starts for SarahRose\_9:

(Start: 23 @6604 has 107 MA's), (27, 6646), (71, 7051), (81, 7120),

Gene: Sashimi\_7 Start: 5113, Stop: 5619, Start Num: 25

Candidate Starts for Sashimi\_7:

(24, 5110), (Start: 25 @5113 has 37 MA's), (59, 5404), (67, 5473),

Gene: Satrap\_6 Start: 4951, Stop: 5457, Start Num: 25

Candidate Starts for Satrap\_6:

(24, 4948), (Start: 25 @4951 has 37 MA's), (59, 5242), (67, 5311),

Gene: Shukran\_6 Start: 4951, Stop: 5457, Start Num: 25

Candidate Starts for Shukran\_6:

(24, 4948), (Start: 25 @4951 has 37 MA's), (59, 5242), (67, 5311),

Gene: Snorlax\_9 Start: 6604, Stop: 7149, Start Num: 23

Candidate Starts for Snorlax\_9:

(Start: 23 @6604 has 107 MA's), (27, 6646), (71, 7051), (81, 7120),

Gene: SonDevVon\_5 Start: 4945, Stop: 5445, Start Num: 25

Candidate Starts for SonDevVon\_5:

(Start: 25 @4945 has 37 MA's), (65, 5278),

Gene: South40\_10 Start: 6876, Stop: 7421, Start Num: 23

Candidate Starts for South40\_10:

(Start: 23 @6876 has 107 MA's), (27, 6918), (71, 7323), (81, 7392),

Gene: Speedwell\_14 Start: 8417, Stop: 8953, Start Num: 23

Candidate Starts for Speedwell\_14:

(Start: 23 @8417 has 107 MA's), (56, 8735), (57, 8738), (59, 8747), (63, 8780), (77, 8912),

Gene: SpicyFrank\_6 Start: 4997, Stop: 5506, Start Num: 25

Candidate Starts for SpicyFrank\_6:

(14, 4898), (24, 4994), (Start: 25 @4997 has 37 MA's), (65, 5336), (67, 5360),

Gene: Sporco\_7 Start: 4997, Stop: 5503, Start Num: 25

Candidate Starts for Sporco\_7:

(14, 4898), (24, 4994), (Start: 25 @4997 has 37 MA's), (65, 5333), (67, 5357),

Gene: SqueakyClean\_10 Start: 6741, Stop: 7274, Start Num: 23

Candidate Starts for SqueakyClean\_10:

(Start: 21 @6735 has 3 MA's), (Start: 23 @6741 has 107 MA's), (42, 6891), (59, 7065), (81, 7245),

Gene: Sudan\_9 Start: 6726, Stop: 7268, Start Num: 23

Candidate Starts for Sudan\_9:

(Start: 23 @6726 has 107 MA's), (27, 6768), (36, 6849), (56, 7050), (57, 7053), (59, 7062), (77, 7227),

Gene: Sujidade\_10 Start: 6900, Stop: 7445, Start Num: 23

Candidate Starts for Sujidade\_10:

(Start: 23 @6900 has 107 MA's), (27, 6942), (71, 7347), (81, 7416),

Gene: SunkenRoot\_11 Start: 6788, Stop: 7327, Start Num: 23

Candidate Starts for SunkenRoot\_11:

(Start: 23 @6788 has 107 MA's), (27, 6830), (56, 7109), (57, 7112), (59, 7121), (64, 7163), (77, 7286),

Gene: SunsetPointe\_9 Start: 6635, Stop: 7180, Start Num: 23

Candidate Starts for SunsetPointe\_9:

(Start: 23 @6635 has 107 MA's), (56, 6959), (71, 7082),

Gene: Superstar\_11 Start: 7579, Stop: 8088, Start Num: 23

Candidate Starts for Superstar\_11:

(7, 7447), (Start: 21 @7573 has 3 MA's), (Start: 23 @7579 has 107 MA's), (42, 7708), (59, 7882),

Gene: TagePhighter\_10 Start: 6604, Stop: 7149, Start Num: 23

Candidate Starts for TagePhighter\_10:

(Start: 23 @6604 has 107 MA's), (27, 6646), (71, 7051), (81, 7120),

Gene: Tefunt\_9 Start: 6438, Stop: 6968, Start Num: 23

Candidate Starts for Tefunt\_9:

(7, 6306), (Start: 21 @6432 has 3 MA's), (Start: 23 @6438 has 107 MA's), (43, 6600), (59, 6759), (81, 6939),

Gene: ThayneTheZag\_6 Start: 4948, Stop: 5481, Start Num: 25

Candidate Starts for ThayneTheZag\_6:

(24, 4945), (Start: 25 @4948 has 37 MA's), (48, 5182), (66, 5335),

Gene: Thestral\_10 Start: 6515, Stop: 7033, Start Num: 23

Candidate Starts for Thestral\_10:

(3, 6209), (4, 6212), (7, 6383), (Start: 21 @6509 has 3 MA's), (Start: 23 @6515 has 107 MA's), (29, 6569), (42, 6653), (59, 6827),

Gene: Tiff81\_7 Start: 5109, Stop: 5615, Start Num: 25

Candidate Starts for Tiff81\_7:

(5, 4854), (6, 4908), (24, 5106), (Start: 25 @5109 has 37 MA's), (57, 5391), (59, 5400), (67, 5469), (78, 5577),

Gene: TinaBelcher\_9 Start: 6460, Stop: 6981, Start Num: 23

Candidate Starts for TinaBelcher\_9:

(3, 6154), (4, 6157), (7, 6328), (Start: 21 @6454 has 3 MA's), (Start: 23 @6460 has 107 MA's), (42, 6601), (59, 6775),

Gene: Toma\_9 Start: 6605, Stop: 7150, Start Num: 23

Candidate Starts for Toma\_9:

(Start: 23 @6605 has 107 MA's), (69, 7040), (71, 7052), (81, 7121),

Gene: TouchMeNot\_7 Start: 6234, Stop: 6929, Start Num: 10

Candidate Starts for TouchMeNot\_7:

(Start: 10 @6234 has 4 MA's), (Start: 15 @6291 has 1 MA's), (Start: 23 @6339 has 107 MA's), (38, 6483), (52, 6624), (66, 6744), (82, 6897),

Gene: Triste\_9 Start: 6605, Stop: 7147, Start Num: 23

Candidate Starts for Triste\_9:

(Start: 23 @6605 has 107 MA's), (37, 6734), (71, 7049), (81, 7118),

Gene: Triumph\_11 Start: 6504, Stop: 7037, Start Num: 23

Candidate Starts for Triumph\_11:

(2, 6192), (3, 6198), (4, 6201), (7, 6372), (Start: 21 @6498 has 3 MA's), (Start: 23 @6504 has 107 MA's), (59, 6828),

Gene: TrvxScott\_8 Start: 6455, Stop: 6982, Start Num: 21

Candidate Starts for TrvxScott\_8:

(3, 6155), (4, 6158), (7, 6329), (Start: 21 @6455 has 3 MA's), (Start: 23 @6461 has 107 MA's), (42, 6602), (59, 6776),

Gene: TuanPN\_9 Start: 6608, Stop: 7153, Start Num: 23

Candidate Starts for TuanPN\_9:

(Start: 23 @6608 has 107 MA's), (71, 7055), (81, 7124),

Gene: Unstoppable\_9 Start: 6636, Stop: 7181, Start Num: 23

Candidate Starts for Unstoppable\_9:

(Start: 23 @6636 has 107 MA's), (56, 6960), (71, 7083),

Gene: Urza\_9 Start: 6850, Stop: 7386, Start Num: 23

Candidate Starts for Urza\_9:

(3, 6547), (4, 6550), (7, 6721), (Start: 23 @6850 has 107 MA's), (45, 7027), (55, 7162), (80, 7354),

Gene: Vanseggelen\_12 Start: 6357, Stop: 6899, Start Num: 23

Candidate Starts for Vanseggelen\_12:

(7, 6222), (Start: 23 @6357 has 107 MA's), (56, 6681), (57, 6684), (77, 6858),

Gene: Verabelle\_10 Start: 6722, Stop: 7264, Start Num: 23

Candidate Starts for Verabelle\_10:

(7, 6587), (Start: 23 @6722 has 107 MA's), (45, 6908), (56, 7046), (57, 7049), (63, 7091), (77, 7223),

Gene: Verse\_9 Start: 6789, Stop: 7328, Start Num: 23

Candidate Starts for Verse\_9:

(Start: 23 @6789 has 107 MA's), (27, 6831), (56, 7110), (57, 7113), (59, 7122), (77, 7287),

Gene: VieEnRose\_9 Start: 6924, Stop: 7457, Start Num: 23

Candidate Starts for VieEnRose\_9:

(3, 6621), (4, 6624), (7, 6795), (Start: 23 @6924 has 107 MA's), (45, 7098), (80, 7425),

Gene: Vopal\_7 Start: 4984, Stop: 5517, Start Num: 25

Candidate Starts for Vopal\_7:

(13, 4873), (19, 4948), (24, 4981), (Start: 25 @4984 has 37 MA's), (48, 5218), (66, 5371),

Gene: Werner\_9 Start: 6605, Stop: 7150, Start Num: 23

Candidate Starts for Werner\_9:

(Start: 23 @6605 has 107 MA's), (27, 6647), (71, 7052), (81, 7121),

Gene: Whatever\_9 Start: 6605, Stop: 7150, Start Num: 23

Candidate Starts for Whatever\_9:

(Start: 23 @6605 has 107 MA's), (27, 6647), (71, 7052), (81, 7121),

Gene: Windest\_7 Start: 4984, Stop: 5517, Start Num: 25

Candidate Starts for Windest\_7:

(13, 4873), (19, 4948), (24, 4981), (Start: 25 @4984 has 37 MA's), (48, 5218), (66, 5371),

Gene: Yasdnil\_9 Start: 6604, Stop: 7149, Start Num: 23

Candidate Starts for Yasdnil\_9:

(Start: 23 @6604 has 107 MA's), (71, 7051), (81, 7120),

Gene: Yosif\_10 Start: 7092, Stop: 7634, Start Num: 23

Candidate Starts for Yosif\_10:

(Start: 23 @7092 has 107 MA's), (77, 7593),

Gene: YoungHarleezy\_6 Start: 4950, Stop: 5456, Start Num: 25

Candidate Starts for YoungHarleezy\_6:

(24, 4947), (Start: 25 @4950 has 37 MA's), (65, 5286), (67, 5310),

Gene: Zainub\_11 Start: 6992, Stop: 7513, Start Num: 23

Candidate Starts for Zainub\_11:

(2, 6680), (3, 6686), (4, 6689), (7, 6860), (Start: 23 @6992 has 107 MA's), (42, 7133), (59, 7307), (70, 7409),

Gene: ZamZam\_9 Start: 6698, Stop: 7228, Start Num: 23

Candidate Starts for ZamZam\_9:

(Start: 23 @6698 has 107 MA's), (27, 6740), (45, 6872), (56, 7010), (57, 7013), (59, 7022), (77, 7187),

Gene: Zemlya\_10 Start: 6604, Stop: 7149, Start Num: 23

Candidate Starts for Zemlya\_10:

(Start: 23 @6604 has 107 MA's), (71, 7051), (81, 7120),

Gene: phiCAM\_10 Start: 8461, Stop: 8991, Start Num: 23

Candidate Starts for phiCAM\_10:

(Start: 23 @8461 has 107 MA's), (27, 8503), (56, 8773), (57, 8776), (59, 8785), (70, 8887), (77, 8950),

Gene: phiHau3\_11 Start: 6678, Stop: 7202, Start Num: 23

Candidate Starts for phiHau3\_11:

(Start: 21 @6672 has 3 MA's), (Start: 23 @6678 has 107 MA's), (34, 6771), (46, 6870), (51, 6936), (59, 6993),