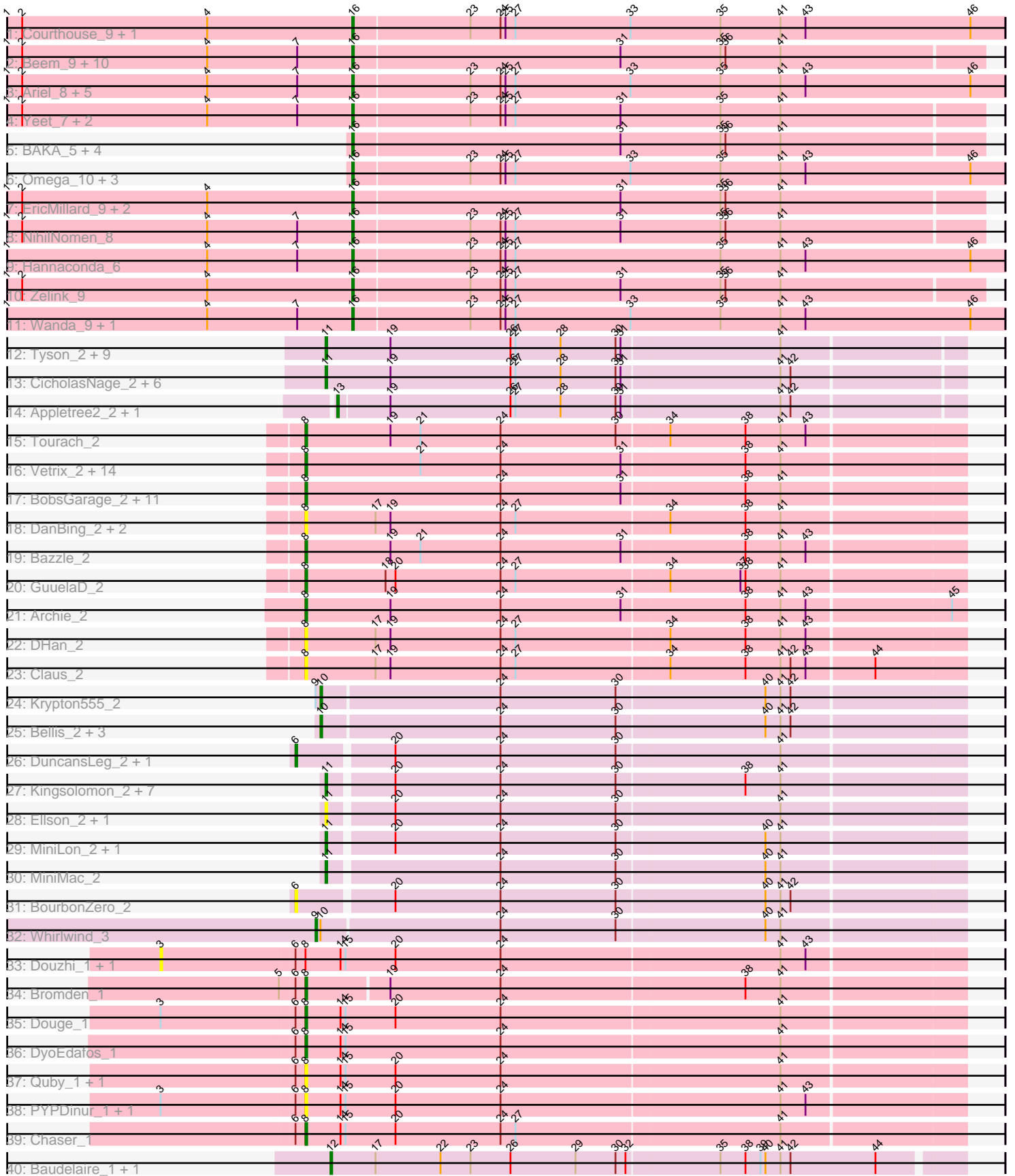


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Note: Tracks are now grouped by subcluster and scaled. Switching in subcluster is indicated by changes in track color. Track scale is now set by default to display the region 30 bp upstream of start 1 to 30 bp downstream of the last possible start. 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 196371 Report

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

Pham number 196371 has 128 members, 22 are drafts.

Phages represented in each track:

- Track 1 : Courthouse\_9, Superphikiman\_9
- Track 2 : Beem\_9, Minerva\_8, DmpstrDiver\_8, ThreeRngTarjay\_8, Dallas\_8, Redno2\_8, Ejimix\_10, Hughesyang\_8, JuicyJay\_10, Halley\_9, Kalah2\_9
- Track 3 : Ariel\_8, Porcelain\_9, MiaZeal\_9, Lucky2013\_9, Bobby\_10, Squint\_9
- Track 4 : Yeet\_7, Pound\_8, Schatzie\_7
- Track 5 : BAKA\_5, Duke13\_5, Optimus\_6, Thibault\_5, Constella\_4
- Track 6 : Omega\_10, KashFlow\_3, LittleE\_8, Gonephishing\_9
- Track 7 : EricMillard\_9, Odette\_8, Phoebus\_9
- Track 8 : NihilNomen\_8
- Track 9 : Hannaconda\_6
- Track 10 : Zelink\_9
- Track 11 : Wanda\_9, Klein\_9
- Track 12 : Tyson\_2, Wyatt2\_2, Zaria\_2, AvadaKedavra\_2, Wamburgxpress\_2, Rose5\_2, Calm\_2, MAckerman\_2, Halena\_2, Acquire49\_2
- Track 13 : CicholasNage\_2, LeBron\_2, JoeDirt\_2, UPIE\_2, Enceladus\_2, DirkDirk\_2, Silverleaf\_2
- Track 14 : Appletree2\_2, OhShagHennessy\_2
- Track 15 : Tourach\_2
- Track 16 : Vatrix\_2, Soap141\_2, Kahlid\_2, LilDestine\_2, Sarshaun\_2, Finemlucis\_2, Nicholasp3\_2, Loadrie\_2, Gardann\_2, Wilder\_2, MkaliMitinis3\_2, Hafay\_2, Crossroads\_2, Wigglewiggle\_2, Rumpelstiltskin\_2
- Track 17 : BobsGarage\_2, Netyap\_2, Miley16\_2, Gabriela\_2, Winky\_2, Zakai\_2, Lewan\_2, DrSeegs\_2, Breezona\_2, Itos\_2, BigCheese\_2, Faith1\_2
- Track 18 : DanBing\_2, ZhongYanYuan\_2, Baoshan\_2
- Track 19 : Bazzle\_2
- Track 20 : GuuelaD\_2
- Track 21 : Archie\_2
- Track 22 : DHan\_2
- Track 23 : Claus\_2
- Track 24 : Krypton555\_2
- Track 25 : Bellis\_2, Moostard\_2, Samty\_2, Finnry\_2
- Track 26 : DuncansLeg\_2, LiyuLake\_2
- Track 27 : Kingsolomon\_2, Nicholas\_2, Lumos\_2, Snenia\_2, MsGreen\_2, Jubie\_2, Clautastrophe\_2, Jobypre\_2
- Track 28 : Ellson\_2, KirDoubleO7\_2
- Track 29 : MiniLon\_2, Lolly9\_2
- Track 30 : MiniMac\_2

- Track 31 : BourbonZero\_2
- Track 32 : Whirlwind\_3
- Track 33 : Douzhi\_1, BrainDrainer\_1
- Track 34 : Bromden\_1
- Track 35 : Douge\_1
- Track 36 : DyoEdafos\_1
- Track 37 : Quby\_1, FarmResident\_1
- Track 38 : PYPDinur\_1, Sheng711\_1
- Track 39 : Chaser\_1
- Track 40 : Baudelaire\_1, Aegeus\_1

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

The start number called the most often in the published annotations is 16, it was called in 37 of the 106 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Ariel\_8, BAKA\_5, Beem\_9, Bobby\_10, Constella\_4, Courthouse\_9, Dallas\_8, DmpstrDiver\_8, Duke13\_5, Ejimix\_10, EricMillard\_9, Gonephishing\_9, Halley\_9, Hannaconda\_6, Hughesyang\_8, JuicyJay\_10, Kalah2\_9, KashFlow\_3, Klein\_9, LittleE\_8, Lucky2013\_9, MiaZeal\_9, Minerva\_8, NihilNomen\_8, Odette\_8, Omega\_10, Optimus\_6, Phoebus\_9, Porcelain\_9, Pound\_8, Redno2\_8, Schatzie\_7, Squint\_9, Superphikiman\_9, Thibault\_5, ThreeRngTarjay\_8, Wanda\_9, Yeet\_7, Zelink\_9,

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

- 

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

- Acquire49\_2, Aegeus\_1, Appletree2\_2, Archie\_2, AvadaKedavra\_2, Baoshan\_2, Baudelaire\_1, Bazzle\_2, Bellis\_2, BigCheese\_2, BobsGarage\_2, BourbonZero\_2, BrainDrainer\_1, Breezona\_2, Bromden\_1, Calm\_2, Chaser\_1, CicholasNage\_2, Claus\_2, Clautastrophe\_2, Crossroads\_2, DHan\_2, DanBing\_2, DirkDirk\_2, Douge\_1, Douzhi\_1, DrSeegs\_2, DuncansLeg\_2, DyoEdafos\_1, Ellson\_2, Enceladus\_2, Faith1\_2, FarmResident\_1, Finemlucis\_2, Finnry\_2, Gabriela\_2, Gardann\_2, GuuelaD\_2, Hafay\_2, Halena\_2, Itos\_2, Jobypre\_2, JoeDirt\_2, Jubie\_2, Kahlid\_2, Kingsolomon\_2, KirDoubleO7\_2, Krypton555\_2, LeBron\_2, Lewan\_2, LilDestine\_2, LiyuLake\_2, Loadrie\_2, Lolly9\_2, Lumos\_2, MAckerman\_2, Miley16\_2, MiniLon\_2, MiniMac\_2, MkaliMitinis3\_2, Moostard\_2, MsGreen\_2, Netyap\_2, Nicholas\_2, Nicholasp3\_2, OhShagHennessy\_2, PYPDinur\_1, Quby\_1, Rose5\_2, Rumpelstiltskin\_2, Samty\_2, Sarshaun\_2, Sheng711\_1, Silverleaf\_2, Snenia\_2, Soap141\_2, Tourach\_2, Tyson\_2, UPIE\_2, Vetrix\_2, Wamburgxpress\_2, Whirlwind\_3, Wigglewiggles\_2, Wilder\_2, Winky\_2, Wyatt2\_2, Zakai\_2, Zaria\_2, ZhongYanYuan\_2,

**Summary by start number:**

Start 3:

- Found in 5 of 128 ( 3.9% ) of genes in pham
- No Manual Annotations of this start.

- Called 40.0% of time when present
- Phage (with cluster) where this start called: BrainDrainer\_1 (L4), Douzhi\_1 (L4),

#### Start 6:

- Found in 13 of 128 ( 10.2% ) of genes in pham
- Manual Annotations of this start: 1 of 106
- Called 23.1% of time when present
- Phage (with cluster) where this start called: BourbonZero\_2 (L3), DuncansLeg\_2 (L3), LiyuLake\_2 (L3),

#### Start 8:

- Found in 46 of 128 ( 35.9% ) of genes in pham
- Manual Annotations of this start: 32 of 106
- Called 95.7% of time when present
- Phage (with cluster) where this start called: Archie\_2 (L2), Baoshan\_2 (L2), Bazzle\_2 (L2), BigCheese\_2 (L2), BobsGarage\_2 (L2), Breezona\_2 (L2), Bromden\_1 (L4), Chaser\_1 (L4), Claus\_2 (L2), Crossroads\_2 (L2), DHan\_2 (L2), DanBing\_2 (L2), Douge\_1 (L4), DrSeegs\_2 (L2), DyoEdafos\_1 (L4), Faith1\_2 (L2), FarmResident\_1 (L4), Finemlucis\_2 (L2), Gabriela\_2 (L2), Gardann\_2 (L2), GuuelaD\_2 (L2), Hafay\_2 (L2), Itos\_2 (L2), Kahlid\_2 (L2), Lewan\_2 (L2), LilDestine\_2 (L2), Loadrie\_2 (L2), Miley16\_2 (L2), MkaliMitinis3\_2 (L2), Netyap\_2 (L2), Nicholasp3\_2 (L2), PYPDinur\_1 (L4), Quby\_1 (L4), Rumpelstiltskin\_2 (L2), Sarshaun\_2 (L2), Sheng711\_1 (L4), Soap141\_2 (L2), Tourach\_2 (L2), Vetrix\_2 (L2), Wigglewiggle\_2 (L2), Wilder\_2 (L2), Winky\_2 (L2), Zakai\_2 (L2), ZhongYanYuan\_2 (L2),

#### Start 9:

- Found in 2 of 128 ( 1.6% ) of genes in pham
- Manual Annotations of this start: 1 of 106
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Whirlwind\_3 (L3),

#### Start 10:

- Found in 6 of 128 ( 4.7% ) of genes in pham
- Manual Annotations of this start: 4 of 106
- Called 83.3% of time when present
- Phage (with cluster) where this start called: Bellis\_2 (L3), Finnry\_2 (L3), Krypton555\_2 (L3), Moostard\_2 (L3), Samty\_2 (L3),

#### Start 11:

- Found in 30 of 128 ( 23.4% ) of genes in pham
- Manual Annotations of this start: 27 of 106
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Acquire49\_2 (L1), AvadaKedavra\_2 (L1), Calm\_2 (L1), CicholasNage\_2 (L1), Clautastrophe\_2 (L3), DirkDirk\_2 (L1), Ellson\_2 (L3), Enceladus\_2 (L1), Halena\_2 (L1), Jobypre\_2 (L3), JoeDirt\_2 (L1), Jubie\_2 (L3), Kingsolomon\_2 (L3), KirDoubleO7\_2 (L3), LeBron\_2 (L1), Lolly9\_2 (L3), Lumos\_2 (L3), MAckerman\_2 (L1), MiniLon\_2 (L3), MiniMac\_2 (L3), MsGreen\_2 (L3), Nicholas\_2 (L3), Rose5\_2 (L1), Silverleaf\_2 (L1), Snenia\_2 (L3), Tyson\_2 (L1), UPIE\_2 (L1), Wamburggrxpress\_2 (L1), Wyatt2\_2 (L1), Zaria\_2 (L1),

#### Start 12:

- Found in 2 of 128 ( 1.6% ) of genes in pham
- Manual Annotations of this start: 2 of 106

- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aegeus\_1 (L5), Baudelaire\_1 (L5),

Start 13:

- Found in 2 of 128 ( 1.6% ) of genes in pham
- Manual Annotations of this start: 2 of 106
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Appletree2\_2 (L1), OhShagHennessy\_2 (L1),

Start 16:

- Found in 39 of 128 ( 30.5% ) of genes in pham
- Manual Annotations of this start: 37 of 106
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ariel\_8 (J), BAKA\_5 (J), Beem\_9 (J), Bobby\_10 (J), Constella\_4 (J), Courthouse\_9 (J), Dallas\_8 (J), DmpstrDiver\_8 (J), Duke13\_5 (J), Ejimix\_10 (J), EricMillard\_9 (J), Gonephishing\_9 (J), Halley\_9 (J), Hannaconda\_6 (J), Hughesyang\_8 (J), JuicyJay\_10 (J), Kalah2\_9 (J), KashFlow\_3 (J), Klein\_9 (J), LittleE\_8 (J), Lucky2013\_9 (J), MiaZeal\_9 (J), Minerva\_8 (J), NihilNomen\_8 (J), Odette\_8 (J), Omega\_10 (J), Optimus\_6 (J), Phoebus\_9 (J), Porcelain\_9 (J), Pound\_8 (J), Redno2\_8 (J), Schatzie\_7 (J), Squint\_9 (J), Superphikiman\_9 (J), Thibault\_5 (J), ThreeRngTarjay\_8 (J), Wanda\_9 (J), Yeet\_7 (J), Zelink\_9 (J),

### **Summary by clusters:**

There are 6 clusters represented in this pham: J, L4, L5, L2, L3, L1,

Info for manual annotations of cluster J:

- Start number 16 was manually annotated 37 times for cluster J.

Info for manual annotations of cluster L1:

- Start number 11 was manually annotated 17 times for cluster L1.
- Start number 13 was manually annotated 2 times for cluster L1.

Info for manual annotations of cluster L2:

- Start number 8 was manually annotated 28 times for cluster L2.

Info for manual annotations of cluster L3:

- Start number 6 was manually annotated 1 time for cluster L3.
- Start number 9 was manually annotated 1 time for cluster L3.
- Start number 10 was manually annotated 4 times for cluster L3.
- Start number 11 was manually annotated 10 times for cluster L3.

Info for manual annotations of cluster L4:

- Start number 8 was manually annotated 4 times for cluster L4.

Info for manual annotations of cluster L5:

- Start number 12 was manually annotated 2 times for cluster L5.

### **Gene Information:**

Gene: Acquire49\_2 Start: 474, Stop: 848, Start Num: 11

Candidate Starts for Acquire49\_2:

(Start: 11 @474 has 27 MA's), (19, 513), (26, 585), (27, 588), (28, 615), (30, 648), (31, 651), (41, 744),

Gene: Aegeus\_1 Start: 126, Stop: 497, Start Num: 12

Candidate Starts for Aegeus\_1:

(Start: 12 @126 has 2 MA's), (17, 153), (22, 192), (23, 210), (26, 234), (29, 273), (30, 297), (32, 303), (35, 357), (38, 372), (39, 381), (40, 384), (41, 393), (42, 399), (44, 450),

Gene: Appletree2\_2 Start: 456, Stop: 821, Start Num: 13

Candidate Starts for Appletree2\_2:

(Start: 13 @456 has 2 MA's), (19, 486), (26, 558), (27, 561), (28, 588), (30, 621), (31, 624), (41, 717), (42, 723),

Gene: Archie\_2 Start: 442, Stop: 831, Start Num: 8

Candidate Starts for Archie\_2:

(Start: 8 @442 has 32 MA's), (19, 493), (24, 559), (31, 631), (38, 703), (41, 724), (43, 739), (45, 823),

Gene: Ariel\_8 Start: 2563, Stop: 2952, Start Num: 16

Candidate Starts for Ariel\_8:

(1, 2356), (2, 2365), (4, 2476), (7, 2530), (Start: 16 @2563 has 37 MA's), (23, 2632), (24, 2650), (25, 2653), (27, 2659), (33, 2728), (35, 2782), (41, 2818), (43, 2833), (46, 2932),

Gene: AvadaKedavra\_2 Start: 474, Stop: 848, Start Num: 11

Candidate Starts for AvadaKedavra\_2:

(Start: 11 @474 has 27 MA's), (19, 513), (26, 585), (27, 588), (28, 615), (30, 648), (31, 651), (41, 744),

Gene: BAKA\_5 Start: 2395, Stop: 2769, Start Num: 16

Candidate Starts for BAKA\_5:

(Start: 16 @2395 has 37 MA's), (31, 2554), (35, 2614), (36, 2617), (41, 2650),

Gene: Baoshan\_2 Start: 489, Stop: 878, Start Num: 8

Candidate Starts for Baoshan\_2:

(Start: 8 @489 has 32 MA's), (17, 531), (19, 540), (24, 606), (27, 615), (34, 705), (38, 750), (41, 771),

Gene: Baudelaire\_1 Start: 126, Stop: 497, Start Num: 12

Candidate Starts for Baudelaire\_1:

(Start: 12 @126 has 2 MA's), (17, 153), (22, 192), (23, 210), (26, 234), (29, 273), (30, 297), (32, 303), (35, 357), (38, 372), (39, 381), (40, 384), (41, 393), (42, 399), (44, 450),

Gene: Bazzle\_2 Start: 478, Stop: 867, Start Num: 8

Candidate Starts for Bazzle\_2:

(Start: 8 @478 has 32 MA's), (19, 529), (21, 547), (24, 595), (31, 667), (38, 739), (41, 760), (43, 775),

Gene: Beem\_9 Start: 2758, Stop: 3132, Start Num: 16

Candidate Starts for Beem\_9:

(1, 2551), (2, 2560), (4, 2671), (7, 2725), (Start: 16 @2758 has 37 MA's), (31, 2917), (35, 2977), (36, 2980), (41, 3013),

Gene: Bellis\_2 Start: 465, Stop: 842, Start Num: 10

Candidate Starts for Bellis\_2:

(Start: 10 @465 has 4 MA's), (24, 570), (30, 639), (40, 726), (41, 735), (42, 741),

Gene: BigCheese\_2 Start: 477, Stop: 866, Start Num: 8  
Candidate Starts for BigCheese\_2:  
(Start: 8 @477 has 32 MA's), (24, 594), (31, 666), (38, 738), (41, 759),

Gene: Bobby\_10 Start: 3493, Stop: 3882, Start Num: 16  
Candidate Starts for Bobby\_10:  
(1, 3286), (2, 3295), (4, 3406), (7, 3460), (Start: 16 @3493 has 37 MA's), (23, 3562), (24, 3580), (25, 3583), (27, 3589), (33, 3658), (35, 3712), (41, 3748), (43, 3763), (46, 3862),

Gene: BobsGarage\_2 Start: 477, Stop: 866, Start Num: 8  
Candidate Starts for BobsGarage\_2:  
(Start: 8 @477 has 32 MA's), (24, 594), (31, 666), (38, 738), (41, 759),

Gene: BourbonZero\_2 Start: 464, Stop: 853, Start Num: 6  
Candidate Starts for BourbonZero\_2:  
(Start: 6 @464 has 1 MA's), (20, 518), (24, 581), (30, 650), (40, 737), (41, 746), (42, 752),

Gene: BrainDrainer\_1 Start: 45, Stop: 518, Start Num: 3  
Candidate Starts for BrainDrainer\_1:  
(3, 45), (Start: 6 @123 has 1 MA's), (Start: 8 @129 has 32 MA's), (14, 150), (15, 153), (20, 183), (24, 246), (41, 411), (43, 426),

Gene: Breezona\_2 Start: 477, Stop: 866, Start Num: 8  
Candidate Starts for Breezona\_2:  
(Start: 8 @477 has 32 MA's), (24, 594), (31, 666), (38, 738), (41, 759),

Gene: Bromden\_1 Start: 131, Stop: 517, Start Num: 8  
Candidate Starts for Bromden\_1:  
(5, 116), (Start: 6 @125 has 1 MA's), (Start: 8 @131 has 32 MA's), (19, 179), (24, 245), (38, 389), (41, 410),

Gene: Calm\_2 Start: 474, Stop: 848, Start Num: 11  
Candidate Starts for Calm\_2:  
(Start: 11 @474 has 27 MA's), (19, 513), (26, 585), (27, 588), (28, 615), (30, 648), (31, 651), (41, 744),

Gene: Chaser\_1 Start: 129, Stop: 518, Start Num: 8  
Candidate Starts for Chaser\_1:  
(Start: 6 @123 has 1 MA's), (Start: 8 @129 has 32 MA's), (14, 150), (15, 153), (20, 183), (24, 246), (27, 255), (41, 411),

Gene: CicholasNage\_2 Start: 475, Stop: 849, Start Num: 11  
Candidate Starts for CicholasNage\_2:  
(Start: 11 @475 has 27 MA's), (19, 514), (26, 586), (27, 589), (28, 616), (30, 649), (31, 652), (41, 745), (42, 751),

Gene: Claus\_2 Start: 489, Stop: 878, Start Num: 8  
Candidate Starts for Claus\_2:  
(Start: 8 @489 has 32 MA's), (17, 531), (19, 540), (24, 606), (27, 615), (34, 705), (38, 750), (41, 771), (42, 777), (43, 786), (44, 825),

Gene: Clautastrophe\_2 Start: 481, Stop: 852, Start Num: 11  
Candidate Starts for Clautastrophe\_2:  
(Start: 11 @481 has 27 MA's), (20, 517), (24, 580), (30, 649), (38, 724), (41, 745),

Gene: Constella\_4 Start: 1576, Stop: 1950, Start Num: 16  
Candidate Starts for Constella\_4:  
(Start: 16 @1576 has 37 MA's), (31, 1735), (35, 1795), (36, 1798), (41, 1831),

Gene: Courthouse\_9 Start: 3362, Stop: 3751, Start Num: 16  
Candidate Starts for Courthouse\_9:  
(1, 3155), (2, 3164), (4, 3275), (Start: 16 @3362 has 37 MA's), (23, 3431), (24, 3449), (25, 3452), (27, 3458), (33, 3527), (35, 3581), (41, 3617), (43, 3632), (46, 3731),

Gene: Crossroads\_2 Start: 477, Stop: 866, Start Num: 8  
Candidate Starts for Crossroads\_2:  
(Start: 8 @477 has 32 MA's), (21, 546), (24, 594), (31, 666), (38, 738), (41, 759),

Gene: DHan\_2 Start: 488, Stop: 877, Start Num: 8  
Candidate Starts for DHan\_2:  
(Start: 8 @488 has 32 MA's), (17, 530), (19, 539), (24, 605), (27, 614), (34, 704), (38, 749), (41, 770), (43, 785),

Gene: Dallas\_8 Start: 2297, Stop: 2671, Start Num: 16  
Candidate Starts for Dallas\_8:  
(1, 2090), (2, 2099), (4, 2210), (7, 2264), (Start: 16 @2297 has 37 MA's), (31, 2456), (35, 2516), (36, 2519), (41, 2552),

Gene: DanBing\_2 Start: 489, Stop: 878, Start Num: 8  
Candidate Starts for DanBing\_2:  
(Start: 8 @489 has 32 MA's), (17, 531), (19, 540), (24, 606), (27, 615), (34, 705), (38, 750), (41, 771),

Gene: DirkDirk\_2 Start: 475, Stop: 849, Start Num: 11  
Candidate Starts for DirkDirk\_2:  
(Start: 11 @475 has 27 MA's), (19, 514), (26, 586), (27, 589), (28, 616), (30, 649), (31, 652), (41, 745), (42, 751),

Gene: DmpstrDiver\_8 Start: 2938, Stop: 3312, Start Num: 16  
Candidate Starts for DmpstrDiver\_8:  
(1, 2731), (2, 2740), (4, 2851), (7, 2905), (Start: 16 @2938 has 37 MA's), (31, 3097), (35, 3157), (36, 3160), (41, 3193),

Gene: Douge\_1 Start: 129, Stop: 518, Start Num: 8  
Candidate Starts for Douge\_1:  
(3, 45), (Start: 6 @123 has 1 MA's), (Start: 8 @129 has 32 MA's), (14, 150), (15, 153), (20, 183), (24, 246), (41, 411),

Gene: Douzhi\_1 Start: 45, Stop: 518, Start Num: 3  
Candidate Starts for Douzhi\_1:  
(3, 45), (Start: 6 @123 has 1 MA's), (Start: 8 @129 has 32 MA's), (14, 150), (15, 153), (20, 183), (24, 246), (41, 411), (43, 426),

Gene: DrSeegs\_2 Start: 477, Stop: 866, Start Num: 8  
Candidate Starts for DrSeegs\_2:  
(Start: 8 @477 has 32 MA's), (24, 594), (31, 666), (38, 738), (41, 759),

Gene: Duke13\_5 Start: 2323, Stop: 2697, Start Num: 16



Candidate Starts for Duke13\_5:

(Start: 16 @2323 has 37 MA's), (31, 2482), (35, 2542), (36, 2545), (41, 2578),

Gene: DuncansLeg\_2 Start: 466, Stop: 855, Start Num: 6

Candidate Starts for DuncansLeg\_2:

(Start: 6 @466 has 1 MA's), (20, 520), (24, 583), (30, 652), (41, 748),

Gene: DyoEdafos\_1 Start: 128, Stop: 517, Start Num: 8

Candidate Starts for DyoEdafos\_1:

(Start: 6 @122 has 1 MA's), (Start: 8 @128 has 32 MA's), (14, 149), (15, 152), (24, 245), (41, 410),

Gene: Ejimix\_10 Start: 3508, Stop: 3882, Start Num: 16

Candidate Starts for Ejimix\_10:

(1, 3301), (2, 3310), (4, 3421), (7, 3475), (Start: 16 @3508 has 37 MA's), (31, 3667), (35, 3727), (36, 3730), (41, 3763),

Gene: Ellson\_2 Start: 493, Stop: 864, Start Num: 11

Candidate Starts for Ellson\_2:

(Start: 11 @493 has 27 MA's), (20, 529), (24, 592), (30, 661), (41, 757),

Gene: Enceladus\_2 Start: 475, Stop: 849, Start Num: 11

Candidate Starts for Enceladus\_2:

(Start: 11 @475 has 27 MA's), (19, 514), (26, 586), (27, 589), (28, 616), (30, 649), (31, 652), (41, 745), (42, 751),

Gene: EricMillard\_9 Start: 3043, Stop: 3417, Start Num: 16

Candidate Starts for EricMillard\_9:

(1, 2836), (2, 2845), (4, 2956), (Start: 16 @3043 has 37 MA's), (31, 3202), (35, 3262), (36, 3265), (41, 3298),

Gene: Faith1\_2 Start: 477, Stop: 866, Start Num: 8

Candidate Starts for Faith1\_2:

(Start: 8 @477 has 32 MA's), (24, 594), (31, 666), (38, 738), (41, 759),

Gene: FarmResident\_1 Start: 129, Stop: 518, Start Num: 8

Candidate Starts for FarmResident\_1:

(Start: 6 @123 has 1 MA's), (Start: 8 @129 has 32 MA's), (14, 150), (15, 153), (20, 183), (24, 246), (41, 411),

Gene: Finemlucis\_2 Start: 477, Stop: 866, Start Num: 8

Candidate Starts for Finemlucis\_2:

(Start: 8 @477 has 32 MA's), (21, 546), (24, 594), (31, 666), (38, 738), (41, 759),

Gene: Finnry\_2 Start: 465, Stop: 842, Start Num: 10

Candidate Starts for Finnry\_2:

(Start: 10 @465 has 4 MA's), (24, 570), (30, 639), (40, 726), (41, 735), (42, 741),

Gene: Gabriela\_2 Start: 477, Stop: 866, Start Num: 8

Candidate Starts for Gabriela\_2:

(Start: 8 @477 has 32 MA's), (24, 594), (31, 666), (38, 738), (41, 759),

Gene: Gardann\_2 Start: 477, Stop: 866, Start Num: 8

Candidate Starts for Gardann\_2:

(Start: 8 @477 has 32 MA's), (21, 546), (24, 594), (31, 666), (38, 738), (41, 759),

Gene: Gonephishing\_9 Start: 3890, Stop: 4279, Start Num: 16

Candidate Starts for Gonephishing\_9:

(Start: 16 @3890 has 37 MA's), (23, 3959), (24, 3977), (25, 3980), (27, 3986), (33, 4055), (35, 4109), (41, 4145), (43, 4160), (46, 4259),

Gene: GuuelaD\_2 Start: 477, Stop: 866, Start Num: 8

Candidate Starts for GuuelaD\_2:

(Start: 8 @477 has 32 MA's), (18, 525), (20, 531), (24, 594), (27, 603), (34, 693), (37, 735), (38, 738), (41, 759),

Gene: Hafay\_2 Start: 477, Stop: 866, Start Num: 8

Candidate Starts for Hafay\_2:

(Start: 8 @477 has 32 MA's), (21, 546), (24, 594), (31, 666), (38, 738), (41, 759),

Gene: Halena\_2 Start: 474, Stop: 848, Start Num: 11

Candidate Starts for Halena\_2:

(Start: 11 @474 has 27 MA's), (19, 513), (26, 585), (27, 588), (28, 615), (30, 648), (31, 651), (41, 744),

Gene: Halley\_9 Start: 2758, Stop: 3132, Start Num: 16

Candidate Starts for Halley\_9:

(1, 2551), (2, 2560), (4, 2671), (7, 2725), (Start: 16 @2758 has 37 MA's), (31, 2917), (35, 2977), (36, 2980), (41, 3013),

Gene: Hannaconda\_6 Start: 2042, Stop: 2431, Start Num: 16

Candidate Starts for Hannaconda\_6:

(1, 1835), (4, 1955), (7, 2009), (Start: 16 @2042 has 37 MA's), (23, 2111), (24, 2129), (25, 2132), (27, 2138), (35, 2261), (41, 2297), (43, 2312), (46, 2411),

Gene: Hughesyang\_8 Start: 2938, Stop: 3312, Start Num: 16

Candidate Starts for Hughesyang\_8:

(1, 2731), (2, 2740), (4, 2851), (7, 2905), (Start: 16 @2938 has 37 MA's), (31, 3097), (35, 3157), (36, 3160), (41, 3193),

Gene: Itos\_2 Start: 477, Stop: 866, Start Num: 8

Candidate Starts for Itos\_2:

(Start: 8 @477 has 32 MA's), (24, 594), (31, 666), (38, 738), (41, 759),

Gene: Jobypre\_2 Start: 481, Stop: 852, Start Num: 11

Candidate Starts for Jobypre\_2:

(Start: 11 @481 has 27 MA's), (20, 517), (24, 580), (30, 649), (38, 724), (41, 745),

Gene: JoeDirt\_2 Start: 475, Stop: 849, Start Num: 11

Candidate Starts for JoeDirt\_2:

(Start: 11 @475 has 27 MA's), (19, 514), (26, 586), (27, 589), (28, 616), (30, 649), (31, 652), (41, 745), (42, 751),

Gene: Jubie\_2 Start: 481, Stop: 852, Start Num: 11

Candidate Starts for Jubie\_2:

(Start: 11 @481 has 27 MA's), (20, 517), (24, 580), (30, 649), (38, 724), (41, 745),

Gene: JuicyJay\_10 Start: 3588, Stop: 3962, Start Num: 16

Candidate Starts for JuicyJay\_10:

(1, 3381), (2, 3390), (4, 3501), (7, 3555), (Start: 16 @3588 has 37 MA's), (31, 3747), (35, 3807), (36, 3810), (41, 3843),

Gene: Kahlid\_2 Start: 477, Stop: 866, Start Num: 8

Candidate Starts for Kahlid\_2:

(Start: 8 @477 has 32 MA's), (21, 546), (24, 594), (31, 666), (38, 738), (41, 759),

Gene: Kalah2\_9 Start: 3357, Stop: 3731, Start Num: 16

Candidate Starts for Kalah2\_9:

(1, 3150), (2, 3159), (4, 3270), (7, 3324), (Start: 16 @3357 has 37 MA's), (31, 3516), (35, 3576), (36, 3579), (41, 3612),

Gene: KashFlow\_3 Start: 1608, Stop: 1997, Start Num: 16

Candidate Starts for KashFlow\_3:

(Start: 16 @1608 has 37 MA's), (23, 1677), (24, 1695), (25, 1698), (27, 1704), (33, 1773), (35, 1827), (41, 1863), (43, 1878), (46, 1977),

Gene: Kingsolomon\_2 Start: 481, Stop: 852, Start Num: 11

Candidate Starts for Kingsolomon\_2:

(Start: 11 @481 has 27 MA's), (20, 517), (24, 580), (30, 649), (38, 724), (41, 745),

Gene: KirDoubleO7\_2 Start: 493, Stop: 864, Start Num: 11

Candidate Starts for KirDoubleO7\_2:

(Start: 11 @493 has 27 MA's), (20, 529), (24, 592), (30, 661), (41, 757),

Gene: Klein\_9 Start: 3342, Stop: 3731, Start Num: 16

Candidate Starts for Klein\_9:

(1, 3135), (4, 3255), (7, 3309), (Start: 16 @3342 has 37 MA's), (23, 3411), (24, 3429), (25, 3432), (27, 3438), (33, 3507), (35, 3561), (41, 3597), (43, 3612), (46, 3711),

Gene: Krypton555\_2 Start: 464, Stop: 841, Start Num: 10

Candidate Starts for Krypton555\_2:

(Start: 9 @461 has 1 MA's), (Start: 10 @464 has 4 MA's), (24, 569), (30, 638), (40, 725), (41, 734), (42, 740),

Gene: LeBron\_2 Start: 475, Stop: 849, Start Num: 11

Candidate Starts for LeBron\_2:

(Start: 11 @475 has 27 MA's), (19, 514), (26, 586), (27, 589), (28, 616), (30, 649), (31, 652), (41, 745), (42, 751),

Gene: Lewan\_2 Start: 477, Stop: 866, Start Num: 8

Candidate Starts for Lewan\_2:

(Start: 8 @477 has 32 MA's), (24, 594), (31, 666), (38, 738), (41, 759),

Gene: LilDestine\_2 Start: 477, Stop: 866, Start Num: 8

Candidate Starts for LilDestine\_2:

(Start: 8 @477 has 32 MA's), (21, 546), (24, 594), (31, 666), (38, 738), (41, 759),

Gene: LittleE\_8 Start: 2721, Stop: 3110, Start Num: 16

Candidate Starts for LittleE\_8:

(Start: 16 @2721 has 37 MA's), (23, 2790), (24, 2808), (25, 2811), (27, 2817), (33, 2886), (35, 2940), (41, 2976), (43, 2991), (46, 3090),

Gene: LiyuLake\_2 Start: 466, Stop: 855, Start Num: 6  
Candidate Starts for LiyuLake\_2:  
(Start: 6 @466 has 1 MA's), (20, 520), (24, 583), (30, 652), (41, 748),

Gene: Loadrie\_2 Start: 477, Stop: 866, Start Num: 8  
Candidate Starts for Loadrie\_2:  
(Start: 8 @477 has 32 MA's), (21, 546), (24, 594), (31, 666), (38, 738), (41, 759),

Gene: Lolly9\_2 Start: 481, Stop: 852, Start Num: 11  
Candidate Starts for Lolly9\_2:  
(Start: 11 @481 has 27 MA's), (20, 517), (24, 580), (30, 649), (40, 736), (41, 745),

Gene: Lucky2013\_9 Start: 3112, Stop: 3501, Start Num: 16  
Candidate Starts for Lucky2013\_9:  
(1, 2905), (2, 2914), (4, 3025), (7, 3079), (Start: 16 @3112 has 37 MA's), (23, 3181), (24, 3199), (25, 3202), (27, 3208), (33, 3277), (35, 3331), (41, 3367), (43, 3382), (46, 3481),

Gene: Lumos\_2 Start: 481, Stop: 852, Start Num: 11  
Candidate Starts for Lumos\_2:  
(Start: 11 @481 has 27 MA's), (20, 517), (24, 580), (30, 649), (38, 724), (41, 745),

Gene: MAckerman\_2 Start: 474, Stop: 848, Start Num: 11  
Candidate Starts for MAckerman\_2:  
(Start: 11 @474 has 27 MA's), (19, 513), (26, 585), (27, 588), (28, 615), (30, 648), (31, 651), (41, 744),

Gene: MiaZeal\_9 Start: 3181, Stop: 3570, Start Num: 16  
Candidate Starts for MiaZeal\_9:  
(1, 2974), (2, 2983), (4, 3094), (7, 3148), (Start: 16 @3181 has 37 MA's), (23, 3250), (24, 3268), (25, 3271), (27, 3277), (33, 3346), (35, 3400), (41, 3436), (43, 3451), (46, 3550),

Gene: Miley16\_2 Start: 477, Stop: 866, Start Num: 8  
Candidate Starts for Miley16\_2:  
(Start: 8 @477 has 32 MA's), (24, 594), (31, 666), (38, 738), (41, 759),

Gene: Minerva\_8 Start: 2817, Stop: 3191, Start Num: 16  
Candidate Starts for Minerva\_8:  
(1, 2610), (2, 2619), (4, 2730), (7, 2784), (Start: 16 @2817 has 37 MA's), (31, 2976), (35, 3036), (36, 3039), (41, 3072),

Gene: MiniLon\_2 Start: 481, Stop: 852, Start Num: 11  
Candidate Starts for MiniLon\_2:  
(Start: 11 @481 has 27 MA's), (20, 517), (24, 580), (30, 649), (40, 736), (41, 745),

Gene: MiniMac\_2 Start: 481, Stop: 852, Start Num: 11  
Candidate Starts for MiniMac\_2:  
(Start: 11 @481 has 27 MA's), (24, 580), (30, 649), (40, 736), (41, 745),

Gene: MkaliMitinis3\_2 Start: 477, Stop: 866, Start Num: 8  
Candidate Starts for MkaliMitinis3\_2:  
(Start: 8 @477 has 32 MA's), (21, 546), (24, 594), (31, 666), (38, 738), (41, 759),

Gene: Moostard\_2 Start: 465, Stop: 842, Start Num: 10

Candidate Starts for Moostard\_2:

(Start: 10 @465 has 4 MA's), (24, 570), (30, 639), (40, 726), (41, 735), (42, 741),

Gene: MsGreen\_2 Start: 481, Stop: 852, Start Num: 11

Candidate Starts for MsGreen\_2:

(Start: 11 @481 has 27 MA's), (20, 517), (24, 580), (30, 649), (38, 724), (41, 745),

Gene: Netyap\_2 Start: 477, Stop: 866, Start Num: 8

Candidate Starts for Netyap\_2:

(Start: 8 @477 has 32 MA's), (24, 594), (31, 666), (38, 738), (41, 759),

Gene: Nicholas\_2 Start: 481, Stop: 852, Start Num: 11

Candidate Starts for Nicholas\_2:

(Start: 11 @481 has 27 MA's), (20, 517), (24, 580), (30, 649), (38, 724), (41, 745),

Gene: Nicholasp3\_2 Start: 477, Stop: 866, Start Num: 8

Candidate Starts for Nicholasp3\_2:

(Start: 8 @477 has 32 MA's), (21, 546), (24, 594), (31, 666), (38, 738), (41, 759),

Gene: NihilNomen\_8 Start: 2817, Stop: 3191, Start Num: 16

Candidate Starts for NihilNomen\_8:

(1, 2610), (2, 2619), (4, 2730), (7, 2784), (Start: 16 @2817 has 37 MA's), (23, 2886), (24, 2904), (25, 2907), (27, 2913), (31, 2976), (35, 3036), (36, 3039), (41, 3072),

Gene: Odette\_8 Start: 2296, Stop: 2670, Start Num: 16

Candidate Starts for Odette\_8:

(1, 2089), (2, 2098), (4, 2209), (Start: 16 @2296 has 37 MA's), (31, 2455), (35, 2515), (36, 2518), (41, 2551),

Gene: OhShagHennessy\_2 Start: 456, Stop: 821, Start Num: 13

Candidate Starts for OhShagHennessy\_2:

(Start: 13 @456 has 2 MA's), (19, 486), (26, 558), (27, 561), (28, 588), (30, 621), (31, 624), (41, 717), (42, 723),

Gene: Omega\_10 Start: 4066, Stop: 4455, Start Num: 16

Candidate Starts for Omega\_10:

(Start: 16 @4066 has 37 MA's), (23, 4135), (24, 4153), (25, 4156), (27, 4162), (33, 4231), (35, 4285), (41, 4321), (43, 4336), (46, 4435),

Gene: Optimus\_6 Start: 2323, Stop: 2697, Start Num: 16

Candidate Starts for Optimus\_6:

(Start: 16 @2323 has 37 MA's), (31, 2482), (35, 2542), (36, 2545), (41, 2578),

Gene: PYPDinur\_1 Start: 129, Stop: 518, Start Num: 8

Candidate Starts for PYPDinur\_1:

(3, 45), (Start: 6 @123 has 1 MA's), (Start: 8 @129 has 32 MA's), (14, 150), (15, 153), (20, 183), (24, 246), (41, 411), (43, 426),

Gene: Phoebus\_9 Start: 3043, Stop: 3417, Start Num: 16

Candidate Starts for Phoebus\_9:

(1, 2836), (2, 2845), (4, 2956), (Start: 16 @3043 has 37 MA's), (31, 3202), (35, 3262), (36, 3265), (41, 3298),

Gene: Porcelain\_9 Start: 3181, Stop: 3570, Start Num: 16

Candidate Starts for Porcelain\_9:

(1, 2974), (2, 2983), (4, 3094), (7, 3148), (Start: 16 @3181 has 37 MA's), (23, 3250), (24, 3268), (25, 3271), (27, 3277), (33, 3346), (35, 3400), (41, 3436), (43, 3451), (46, 3550),

Gene: Pound\_8 Start: 2813, Stop: 3187, Start Num: 16

Candidate Starts for Pound\_8:

(1, 2606), (2, 2615), (4, 2726), (7, 2780), (Start: 16 @2813 has 37 MA's), (23, 2882), (24, 2900), (25, 2903), (27, 2909), (31, 2972), (35, 3032), (41, 3068),

Gene: Quby\_1 Start: 129, Stop: 518, Start Num: 8

Candidate Starts for Quby\_1:

(Start: 6 @123 has 1 MA's), (Start: 8 @129 has 32 MA's), (14, 150), (15, 153), (20, 183), (24, 246), (41, 411),

Gene: Redno2\_8 Start: 2528, Stop: 2902, Start Num: 16

Candidate Starts for Redno2\_8:

(1, 2321), (2, 2330), (4, 2441), (7, 2495), (Start: 16 @2528 has 37 MA's), (31, 2687), (35, 2747), (36, 2750), (41, 2783),

Gene: Rose5\_2 Start: 474, Stop: 848, Start Num: 11

Candidate Starts for Rose5\_2:

(Start: 11 @474 has 27 MA's), (19, 513), (26, 585), (27, 588), (28, 615), (30, 648), (31, 651), (41, 744),

Gene: Rumpelstiltskin\_2 Start: 477, Stop: 866, Start Num: 8

Candidate Starts for Rumpelstiltskin\_2:

(Start: 8 @477 has 32 MA's), (21, 546), (24, 594), (31, 666), (38, 738), (41, 759),

Gene: Samty\_2 Start: 465, Stop: 842, Start Num: 10

Candidate Starts for Samty\_2:

(Start: 10 @465 has 4 MA's), (24, 570), (30, 639), (40, 726), (41, 735), (42, 741),

Gene: Sarshaun\_2 Start: 477, Stop: 866, Start Num: 8

Candidate Starts for Sarshaun\_2:

(Start: 8 @477 has 32 MA's), (21, 546), (24, 594), (31, 666), (38, 738), (41, 759),

Gene: Schatzie\_7 Start: 2067, Stop: 2441, Start Num: 16

Candidate Starts for Schatzie\_7:

(1, 1860), (2, 1869), (4, 1980), (7, 2034), (Start: 16 @2067 has 37 MA's), (23, 2136), (24, 2154), (25, 2157), (27, 2163), (31, 2226), (35, 2286), (41, 2322),

Gene: Sheng711\_1 Start: 129, Stop: 518, Start Num: 8

Candidate Starts for Sheng711\_1:

(3, 45), (Start: 6 @123 has 1 MA's), (Start: 8 @129 has 32 MA's), (14, 150), (15, 153), (20, 183), (24, 246), (41, 411), (43, 426),

Gene: Silverleaf\_2 Start: 474, Stop: 848, Start Num: 11

Candidate Starts for Silverleaf\_2:

(Start: 11 @474 has 27 MA's), (19, 513), (26, 585), (27, 588), (28, 615), (30, 648), (31, 651), (41, 744), (42, 750),

Gene: Snenia\_2 Start: 481, Stop: 852, Start Num: 11

Candidate Starts for Snenia\_2:

(Start: 11 @481 has 27 MA's), (20, 517), (24, 580), (30, 649), (38, 724), (41, 745),

Gene: Soap141\_2 Start: 477, Stop: 866, Start Num: 8

Candidate Starts for Soap141\_2:

(Start: 8 @477 has 32 MA's), (21, 546), (24, 594), (31, 666), (38, 738), (41, 759),

Gene: Squint\_9 Start: 3112, Stop: 3501, Start Num: 16

Candidate Starts for Squint\_9:

(1, 2905), (2, 2914), (4, 3025), (7, 3079), (Start: 16 @3112 has 37 MA's), (23, 3181), (24, 3199), (25, 3202), (27, 3208), (33, 3277), (35, 3331), (41, 3367), (43, 3382), (46, 3481),

Gene: Superphikiman\_9 Start: 3362, Stop: 3751, Start Num: 16

Candidate Starts for Superphikiman\_9:

(1, 3155), (2, 3164), (4, 3275), (Start: 16 @3362 has 37 MA's), (23, 3431), (24, 3449), (25, 3452), (27, 3458), (33, 3527), (35, 3581), (41, 3617), (43, 3632), (46, 3731),

Gene: Thibault\_5 Start: 2323, Stop: 2697, Start Num: 16

Candidate Starts for Thibault\_5:

(Start: 16 @2323 has 37 MA's), (31, 2482), (35, 2542), (36, 2545), (41, 2578),

Gene: ThreeRngTarjay\_8 Start: 2813, Stop: 3187, Start Num: 16

Candidate Starts for ThreeRngTarjay\_8:

(1, 2606), (2, 2615), (4, 2726), (7, 2780), (Start: 16 @2813 has 37 MA's), (31, 2972), (35, 3032), (36, 3035), (41, 3068),

Gene: Tourach\_2 Start: 477, Stop: 866, Start Num: 8

Candidate Starts for Tourach\_2:

(Start: 8 @477 has 32 MA's), (19, 528), (21, 546), (24, 594), (30, 663), (34, 693), (38, 738), (41, 759), (43, 774),

Gene: Tyson\_2 Start: 474, Stop: 848, Start Num: 11

Candidate Starts for Tyson\_2:

(Start: 11 @474 has 27 MA's), (19, 513), (26, 585), (27, 588), (28, 615), (30, 648), (31, 651), (41, 744),

Gene: UPIE\_2 Start: 475, Stop: 849, Start Num: 11

Candidate Starts for UPIE\_2:

(Start: 11 @475 has 27 MA's), (19, 514), (26, 586), (27, 589), (28, 616), (30, 649), (31, 652), (41, 745), (42, 751),

Gene: Vetrix\_2 Start: 477, Stop: 866, Start Num: 8

Candidate Starts for Vetrix\_2:

(Start: 8 @477 has 32 MA's), (21, 546), (24, 594), (31, 666), (38, 738), (41, 759),

Gene: Wamburgexpress\_2 Start: 474, Stop: 848, Start Num: 11

Candidate Starts for Wamburgexpress\_2:

(Start: 11 @474 has 27 MA's), (19, 513), (26, 585), (27, 588), (28, 615), (30, 648), (31, 651), (41, 744),

Gene: Wanda\_9 Start: 3342, Stop: 3731, Start Num: 16

Candidate Starts for Wanda\_9:

(1, 3135), (4, 3255), (7, 3309), (Start: 16 @3342 has 37 MA's), (23, 3411), (24, 3429), (25, 3432), (27, 3438), (33, 3507), (35, 3561), (41, 3597), (43, 3612), (46, 3711),

Gene: Whirlwind\_3 Start: 461, Stop: 841, Start Num: 9

Candidate Starts for Whirlwind\_3:

(Start: 9 @461 has 1 MA's), (Start: 10 @464 has 4 MA's), (24, 569), (30, 638), (40, 725), (41, 734),

Gene: Wigglewiggles\_2 Start: 477, Stop: 866, Start Num: 8

Candidate Starts for Wigglewiggles\_2:

(Start: 8 @477 has 32 MA's), (21, 546), (24, 594), (31, 666), (38, 738), (41, 759),

Gene: Wilder\_2 Start: 477, Stop: 866, Start Num: 8

Candidate Starts for Wilder\_2:

(Start: 8 @477 has 32 MA's), (21, 546), (24, 594), (31, 666), (38, 738), (41, 759),

Gene: Winky\_2 Start: 477, Stop: 866, Start Num: 8

Candidate Starts for Winky\_2:

(Start: 8 @477 has 32 MA's), (24, 594), (31, 666), (38, 738), (41, 759),

Gene: Wyatt2\_2 Start: 474, Stop: 848, Start Num: 11

Candidate Starts for Wyatt2\_2:

(Start: 11 @474 has 27 MA's), (19, 513), (26, 585), (27, 588), (28, 615), (30, 648), (31, 651), (41, 744),

Gene: Yeet\_7 Start: 2067, Stop: 2441, Start Num: 16

Candidate Starts for Yeet\_7:

(1, 1860), (2, 1869), (4, 1980), (7, 2034), (Start: 16 @2067 has 37 MA's), (23, 2136), (24, 2154), (25, 2157), (27, 2163), (31, 2226), (35, 2286), (41, 2322),

Gene: Zakai\_2 Start: 465, Stop: 854, Start Num: 8

Candidate Starts for Zakai\_2:

(Start: 8 @465 has 32 MA's), (24, 582), (31, 654), (38, 726), (41, 747),

Gene: Zaria\_2 Start: 474, Stop: 848, Start Num: 11

Candidate Starts for Zaria\_2:

(Start: 11 @474 has 27 MA's), (19, 513), (26, 585), (27, 588), (28, 615), (30, 648), (31, 651), (41, 744),

Gene: Zelink\_9 Start: 2841, Stop: 3215, Start Num: 16

Candidate Starts for Zelink\_9:

(1, 2634), (2, 2643), (4, 2754), (Start: 16 @2841 has 37 MA's), (23, 2910), (24, 2928), (25, 2931), (27, 2937), (31, 3000), (35, 3060), (36, 3063), (41, 3096),

Gene: ZhongYanYuan\_2 Start: 489, Stop: 878, Start Num: 8

Candidate Starts for ZhongYanYuan\_2:

(Start: 8 @489 has 32 MA's), (17, 531), (19, 540), (24, 606), (27, 615), (34, 705), (38, 750), (41, 771),