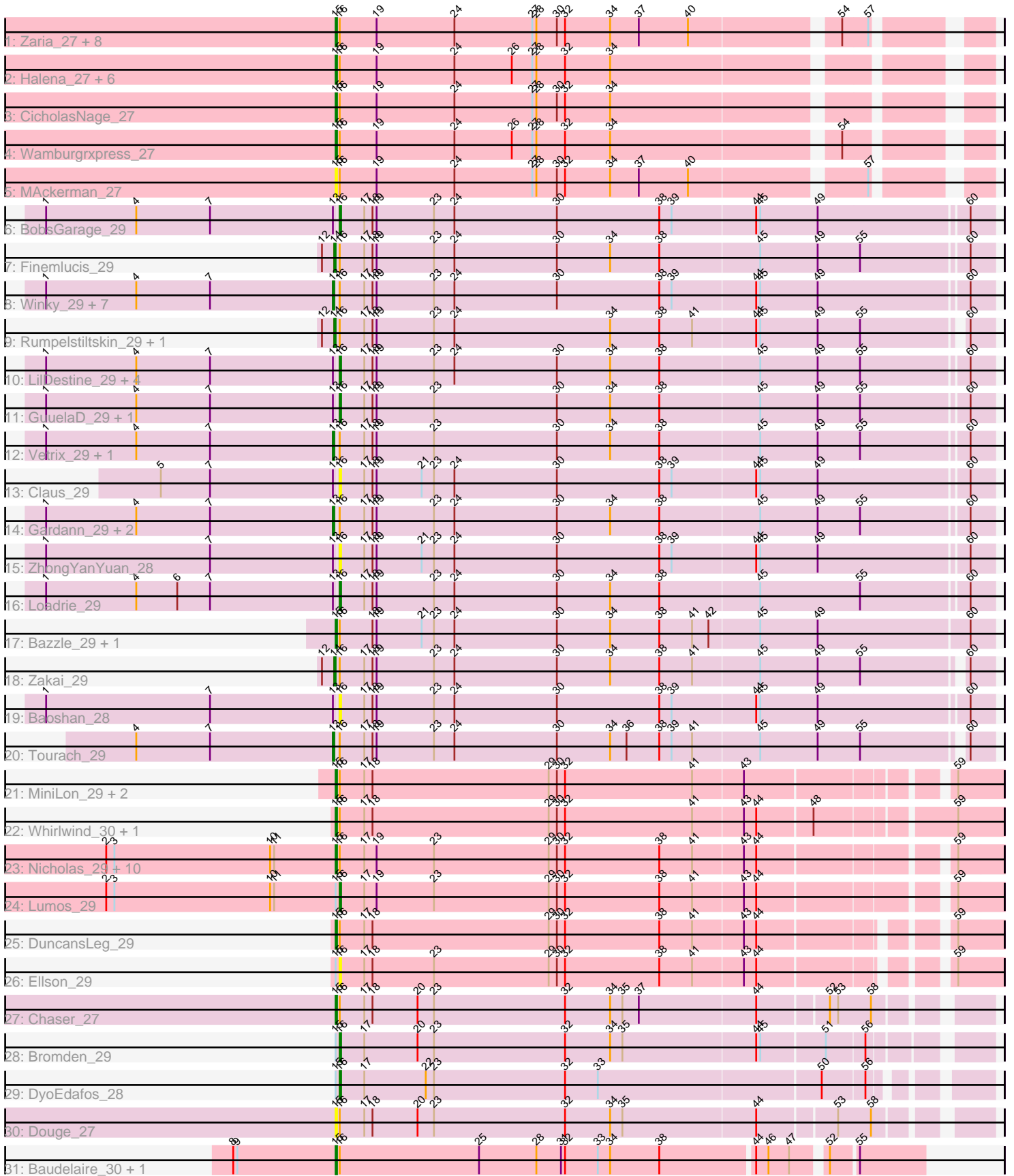


Pham 160361



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 160361 Report

This analysis was run 04/28/24 on database version 559.

Pham number 160361 has 76 members, 9 are drafts.

Phages represented in each track:

- Track 1 : Zaria\_27, OhShagHennessy\_27, Enceladus\_27, Calm\_27, Appletree2\_27, JoeDirt\_27, UPIE\_27, DirkDirk\_27, LeBron\_27
- Track 2 : Halena\_27, AvadaKedavra\_27, Wyatt2\_27, Acquire49\_27, Silverleaf\_27, Rose5\_27, Tyson\_27
- Track 3 : CicholasNage\_27
- Track 4 : Wamburgxpress\_27
- Track 5 : MAckerman\_27
- Track 6 : BobsGarage\_29
- Track 7 : Finemlucis\_29
- Track 8 : Winky\_29, BigCheese\_29, Breezona\_29, Miley16\_29, Faith1\_29, Itos\_29, Netyap\_29, DrSeegs\_29
- Track 9 : Rumpelstiltskin\_29, Gabriela\_29
- Track 10 : LilDestine\_29, Nicholasp3\_29, Wigglewiggles\_29, Kahlid\_29, Hafay\_29
- Track 11 : GuuelaD\_29, Crossroads\_29
- Track 12 : Vetrix\_29, Lewan\_29
- Track 13 : Claus\_29
- Track 14 : Gardann\_29, Wilder\_29, MkaliMitinis3\_29
- Track 15 : ZhongYanYuan\_28
- Track 16 : Loadrie\_29
- Track 17 : Bazzle\_29, Archie\_29
- Track 18 : Zakai\_29
- Track 19 : Baoshan\_28
- Track 20 : Tourach\_29
- Track 21 : MiniLon\_29, MiniMac\_29, Lolly9\_29
- Track 22 : Whirlwind\_30, Krypton555\_29
- Track 23 : Nicholas\_29, Snenia\_29, Samty\_29, Jubie\_29, Finnry\_29, Bellis\_29, MsGreen\_29, Moostard\_29, Jobypre\_29, Kingsolomon\_29, Clautastrophe\_29
- Track 24 : Lumos\_29
- Track 25 : DuncansLeg\_29
- Track 26 : Ellson\_29
- Track 27 : Chaser\_27
- Track 28 : Bromden\_29
- Track 29 : DyoEdafos\_28
- Track 30 : Douge\_27
- Track 31 : Baudelaire\_30, Aegeus\_30

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

The start number called the most often in the published annotations is 15, it was called in 38 of the 67 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Acquire49\_27, Aegeus\_30, Appletree2\_27, Archie\_29, AvadaKedavra\_27, Baudelaire\_30, Bazzle\_29, Bellis\_29, Calm\_27, Chaser\_27, CicholasNage\_27, Clautastrophe\_29, DirkDirk\_27, Douge\_27, DuncansLeg\_29, Enceladus\_27, Finnry\_29, Halena\_27, Jobypre\_29, JoeDirt\_27, Jubie\_29, Kingsolomon\_29, Krypton555\_29, LeBron\_27, Lolly9\_29, MAckerman\_27, MiniLon\_29, MiniMac\_29, Moostard\_29, MsGreen\_29, Nicholas\_29, OhShagHennessy\_27, Rose5\_27, Samty\_29, Silverleaf\_27, Snenia\_29, Tyson\_27, UPIE\_27, Wamburggrxpress\_27, Whirlwind\_30, Wyatt2\_27, Zaria\_27,

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

- Bromden\_29, DyoEdafos\_28, Ellson\_29, Lumos\_29,

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

- Baoshan\_28, BigCheese\_29, BobsGarage\_29, Breezona\_29, Claus\_29, Crossroads\_29, DrSeegs\_29, Faith1\_29, Finemlucis\_29, Gabriela\_29, Gardann\_29, GuuelaD\_29, Hafay\_29, Itos\_29, Kahlid\_29, Lewan\_29, LilDestine\_29, Loadrie\_29, Miley16\_29, MkaliMitinis3\_29, Netyap\_29, Nicholasp3\_29, Rumpelstiltskin\_29, Tourach\_29, Vetrix\_29, Wigglewiggle\_29, Wilder\_29, Winky\_29, Zakai\_29, ZhongYanYuan\_28,

### **Summary by start number:**

Start 13:

- Found in 26 of 76 ( 34.2% ) of genes in pham
- Manual Annotations of this start: 14 of 67
- Called 53.8% of time when present
- Phage (with cluster) where this start called: BigCheese\_29 (L2), Breezona\_29 (L2), DrSeegs\_29 (L2), Faith1\_29 (L2), Gardann\_29 (L2), Itos\_29 (L2), Lewan\_29 (L2), Miley16\_29 (L2), MkaliMitinis3\_29 (L2), Netyap\_29 (L2), Tourach\_29 (L2), Vetrix\_29 (L2), Wilder\_29 (L2), Winky\_29 (L2),

Start 14:

- Found in 4 of 76 ( 5.3% ) of genes in pham
- Manual Annotations of this start: 4 of 67
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Finemlucis\_29 (L2), Gabriela\_29 (L2), Rumpelstiltskin\_29 (L2), Zakai\_29 (L2),

Start 15:

- Found in 46 of 76 ( 60.5% ) of genes in pham
- Manual Annotations of this start: 38 of 67
- Called 91.3% of time when present
- Phage (with cluster) where this start called: Acquire49\_27 (L1), Aegeus\_30 (L5), Appletree2\_27 (L1), Archie\_29 (L2), AvadaKedavra\_27 (L1), Baudelaire\_30 (L5), Bazzle\_29 (L2), Bellis\_29 (L3), Calm\_27 (L1), Chaser\_27 (L4), CicholasNage\_27 (L1), Clautastrophe\_29 (L3), DirkDirk\_27 (L1), Douge\_27 (L4), DuncansLeg\_29 (L3),

Enceladus\_27 (L1), Finnry\_29 (L3), Halena\_27 (L1), Jobypre\_29 (L3), JoeDirt\_27 (L1), Jubie\_29 (L3), Kingsolomon\_29 (L3), Krypton555\_29 (L3), LeBron\_27 (L1), Lolly9\_29 (L3), MAckerman\_27 (L1), MiniLon\_29 (L3), MiniMac\_29 (L3), Moostard\_29 (L3), MsGreen\_29 (L3), Nicholas\_29 (L3), OhShagHennessey\_27 (L1), Rose5\_27 (L1), Samty\_29 (L3), Silverleaf\_27 (L1), Snenia\_29 (L3), Tyson\_27 (L1), UPIE\_27 (L1), Wamburgxpress\_27 (L1), Whirlwind\_30 (L3), Wyatt2\_27 (L1), Zaria\_27 (L1),

Start 16:

- Found in 76 of 76 ( 100.0% ) of genes in pham
- Manual Annotations of this start: 11 of 67
- Called 21.1% of time when present
- Phage (with cluster) where this start called: Baoshan\_28 (L2), BobsGarage\_29 (L2), Bromden\_29 (L4), Claus\_29 (L2), Crossroads\_29 (L2), DyoEdafos\_28 (L4), Ellson\_29 (L3), GuuelaD\_29 (L2), Hafay\_29 (L2), Kahlid\_29 (L2), LilDestine\_29 (L2), Loadrie\_29 (L2), Lumos\_29 (L3), Nicholasp3\_29 (L2), Wigglewiggle\_29 (L2), ZhongYanYuan\_28 (L2),

### **Summary by clusters:**

There are 5 clusters represented in this pham: L4, L5, L2, L3, L1,

Info for manual annotations of cluster L1:

- Start number 15 was manually annotated 18 times for cluster L1.

Info for manual annotations of cluster L2:

- Start number 13 was manually annotated 14 times for cluster L2.
- Start number 14 was manually annotated 4 times for cluster L2.
- Start number 15 was manually annotated 2 times for cluster L2.
- Start number 16 was manually annotated 8 times for cluster L2.

Info for manual annotations of cluster L3:

- Start number 15 was manually annotated 15 times for cluster L3.
- Start number 16 was manually annotated 1 time for cluster L3.

Info for manual annotations of cluster L4:

- Start number 15 was manually annotated 1 time for cluster L4.
- Start number 16 was manually annotated 2 times for cluster L4.

Info for manual annotations of cluster L5:

- Start number 15 was manually annotated 2 times for cluster L5.

### **Gene Information:**

Gene: Acquire49\_27 Start: 26579, Stop: 27022, Start Num: 15

Candidate Starts for Acquire49\_27:

(Start: 15 @26579 has 38 MA's), (Start: 16 @26582 has 11 MA's), (19, 26609), (24, 26666), (26, 26708), (27, 26723), (28, 26726), (32, 26747), (34, 26780),

Gene: Aegeus\_30 Start: 26730, Stop: 27143, Start Num: 15

Candidate Starts for Aegeus\_30:

(8, 26655), (9, 26658), (Start: 15 @26730 has 38 MA's), (Start: 16 @26733 has 11 MA's), (25, 26835), (28, 26877), (31, 26895), (32, 26898), (33, 26922), (34, 26931), (38, 26967), (44, 27033), (46, 27042), (47, 27057), (52, 27078), (55, 27096),

Gene: Appletree2\_27 Start: 26522, Stop: 26965, Start Num: 15

Candidate Starts for Appletree2\_27:

(Start: 15 @26522 has 38 MA's), (Start: 16 @26525 has 11 MA's), (19, 26552), (24, 26609), (27, 26666), (28, 26669), (30, 26684), (32, 26690), (34, 26723), (37, 26744), (40, 26780), (54, 26879), (57, 26897),

Gene: Archie\_29 Start: 27765, Stop: 28241, Start Num: 15

Candidate Starts for Archie\_29:

(Start: 15 @27765 has 38 MA's), (Start: 16 @27768 has 11 MA's), (18, 27792), (19, 27795), (21, 27828), (23, 27837), (24, 27852), (30, 27927), (34, 27966), (38, 28002), (41, 28026), (42, 28038), (45, 28074), (49, 28116), (60, 28224),

Gene: AvadaKedavra\_27 Start: 26589, Stop: 27032, Start Num: 15

Candidate Starts for AvadaKedavra\_27:

(Start: 15 @26589 has 38 MA's), (Start: 16 @26592 has 11 MA's), (19, 26619), (24, 26676), (26, 26718), (27, 26733), (28, 26736), (32, 26757), (34, 26790),

Gene: Baoshan\_28 Start: 27103, Stop: 27573, Start Num: 16

Candidate Starts for Baoshan\_28:

(1, 26890), (7, 27010), (Start: 13 @27100 has 14 MA's), (Start: 16 @27103 has 11 MA's), (17, 27121), (18, 27127), (19, 27130), (23, 27172), (24, 27187), (30, 27262), (38, 27337), (39, 27346), (44, 27406), (45, 27409), (49, 27451), (60, 27556),

Gene: Baudelaire\_30 Start: 26730, Stop: 27143, Start Num: 15

Candidate Starts for Baudelaire\_30:

(8, 26655), (9, 26658), (Start: 15 @26730 has 38 MA's), (Start: 16 @26733 has 11 MA's), (25, 26835), (28, 26877), (31, 26895), (32, 26898), (33, 26922), (34, 26931), (38, 26967), (44, 27033), (46, 27042), (47, 27057), (52, 27078), (55, 27096),

Gene: Bazzle\_29 Start: 27514, Stop: 27990, Start Num: 15

Candidate Starts for Bazzle\_29:

(Start: 15 @27514 has 38 MA's), (Start: 16 @27517 has 11 MA's), (18, 27541), (19, 27544), (21, 27577), (23, 27586), (24, 27601), (30, 27676), (34, 27715), (38, 27751), (41, 27775), (42, 27787), (45, 27823), (49, 27865), (60, 27973),

Gene: Bellis\_29 Start: 27910, Stop: 28374, Start Num: 15

Candidate Starts for Bellis\_29:

(2, 27742), (3, 27748), (10, 27862), (11, 27865), (Start: 15 @27910 has 38 MA's), (Start: 16 @27913 has 11 MA's), (17, 27931), (19, 27940), (23, 27982), (29, 28066), (30, 28072), (32, 28078), (38, 28147), (41, 28171), (43, 28207), (44, 28216), (59, 28342),

Gene: BigCheese\_29 Start: 27279, Stop: 27752, Start Num: 13

Candidate Starts for BigCheese\_29:

(1, 27069), (4, 27135), (7, 27189), (Start: 13 @27279 has 14 MA's), (Start: 16 @27282 has 11 MA's), (17, 27300), (18, 27306), (19, 27309), (23, 27351), (24, 27366), (30, 27441), (38, 27516), (39, 27525), (44, 27585), (45, 27588), (49, 27630), (60, 27735),

Gene: BobsGarage\_29 Start: 27282, Stop: 27752, Start Num: 16

Candidate Starts for BobsGarage\_29:

(1, 27069), (4, 27135), (7, 27189), (Start: 13 @27279 has 14 MA's), (Start: 16 @27282 has 11 MA's), (17, 27300), (18, 27306), (19, 27309), (23, 27351), (24, 27366), (30, 27441), (38, 27516), (39, 27525), (44, 27585), (45, 27588), (49, 27630), (60, 27735),

Gene: Breezona\_29 Start: 27279, Stop: 27752, Start Num: 13

Candidate Starts for Breezona\_29:

(1, 27069), (4, 27135), (7, 27189), (Start: 13 @27279 has 14 MA's), (Start: 16 @27282 has 11 MA's), (17, 27300), (18, 27306), (19, 27309), (23, 27351), (24, 27366), (30, 27441), (38, 27516), (39, 27525), (44, 27585), (45, 27588), (49, 27630), (60, 27735),

Gene: Bromden\_29 Start: 26939, Stop: 27391, Start Num: 16

Candidate Starts for Bromden\_29:

(Start: 15 @26936 has 38 MA's), (Start: 16 @26939 has 11 MA's), (17, 26957), (20, 26996), (23, 27008), (32, 27104), (34, 27137), (35, 27146), (44, 27242), (45, 27245), (51, 27290), (56, 27317),

Gene: Calm\_27 Start: 26593, Stop: 27036, Start Num: 15

Candidate Starts for Calm\_27:

(Start: 15 @26593 has 38 MA's), (Start: 16 @26596 has 11 MA's), (19, 26623), (24, 26680), (27, 26737), (28, 26740), (30, 26755), (32, 26761), (34, 26794), (37, 26815), (40, 26851), (54, 26950), (57, 26968),

Gene: Chaser\_27 Start: 26350, Stop: 26802, Start Num: 15

Candidate Starts for Chaser\_27:

(Start: 15 @26350 has 38 MA's), (Start: 16 @26353 has 11 MA's), (17, 26371), (18, 26377), (20, 26410), (23, 26422), (32, 26518), (34, 26551), (35, 26560), (37, 26572), (44, 26656), (52, 26704), (53, 26710), (58, 26734),

Gene: CicholasNage\_27 Start: 26581, Stop: 27024, Start Num: 15

Candidate Starts for CicholasNage\_27:

(Start: 15 @26581 has 38 MA's), (Start: 16 @26584 has 11 MA's), (19, 26611), (24, 26668), (27, 26725), (28, 26728), (30, 26743), (32, 26749), (34, 26782),

Gene: Claus\_29 Start: 27259, Stop: 27729, Start Num: 16

Candidate Starts for Claus\_29:

(5, 27130), (7, 27166), (Start: 13 @27256 has 14 MA's), (Start: 16 @27259 has 11 MA's), (17, 27277), (18, 27283), (19, 27286), (21, 27319), (23, 27328), (24, 27343), (30, 27418), (38, 27493), (39, 27502), (44, 27562), (45, 27565), (49, 27607), (60, 27712),

Gene: Clautastrophe\_29 Start: 27907, Stop: 28371, Start Num: 15

Candidate Starts for Clautastrophe\_29:

(2, 27739), (3, 27745), (10, 27859), (11, 27862), (Start: 15 @27907 has 38 MA's), (Start: 16 @27910 has 11 MA's), (17, 27928), (19, 27937), (23, 27979), (29, 28063), (30, 28069), (32, 28075), (38, 28144), (41, 28168), (43, 28204), (44, 28213), (59, 28339),

Gene: Crossroads\_29 Start: 27282, Stop: 27752, Start Num: 16

Candidate Starts for Crossroads\_29:

(1, 27069), (4, 27135), (7, 27189), (Start: 13 @27279 has 14 MA's), (Start: 16 @27282 has 11 MA's), (17, 27300), (18, 27306), (19, 27309), (23, 27351), (30, 27441), (34, 27480), (38, 27516), (45, 27588), (49, 27630), (55, 27660), (60, 27735),

Gene: DirkDirk\_27 Start: 26562, Stop: 27005, Start Num: 15

Candidate Starts for DirkDirk\_27:

(Start: 15 @26562 has 38 MA's), (Start: 16 @26565 has 11 MA's), (19, 26592), (24, 26649), (27, 26706), (28, 26709), (30, 26724), (32, 26730), (34, 26763), (37, 26784), (40, 26820), (54, 26919), (57, 26937),

Gene: Douge\_27 Start: 26288, Stop: 26740, Start Num: 15

Candidate Starts for Douge\_27:

(Start: 15 @26288 has 38 MA's), (Start: 16 @26291 has 11 MA's), (17, 26309), (18, 26315), (20, 26348), (23, 26360), (32, 26456), (34, 26489), (35, 26498), (44, 26594), (53, 26648), (58, 26672),

Gene: DrSeegs\_29 Start: 27279, Stop: 27752, Start Num: 13

Candidate Starts for DrSeegs\_29:

(1, 27069), (4, 27135), (7, 27189), (Start: 13 @27279 has 14 MA's), (Start: 16 @27282 has 11 MA's), (17, 27300), (18, 27306), (19, 27309), (23, 27351), (24, 27366), (30, 27441), (38, 27516), (39, 27525), (44, 27585), (45, 27588), (49, 27630), (60, 27735),

Gene: DuncansLeg\_29 Start: 27890, Stop: 28345, Start Num: 15

Candidate Starts for DuncansLeg\_29:

(Start: 15 @27890 has 38 MA's), (Start: 16 @27893 has 11 MA's), (17, 27911), (18, 27917), (29, 28046), (30, 28052), (32, 28058), (38, 28127), (41, 28151), (43, 28187), (44, 28196), (59, 28313),

Gene: DyoEdafos\_28 Start: 26498, Stop: 26944, Start Num: 16

Candidate Starts for DyoEdafos\_28:

(Start: 15 @26495 has 38 MA's), (Start: 16 @26498 has 11 MA's), (17, 26516), (22, 26561), (23, 26567), (32, 26663), (33, 26687), (50, 26846), (56, 26876),

Gene: Ellson\_29 Start: 27880, Stop: 28332, Start Num: 16

Candidate Starts for Ellson\_29:

(Start: 15 @27877 has 38 MA's), (Start: 16 @27880 has 11 MA's), (17, 27898), (18, 27904), (23, 27949), (29, 28033), (30, 28039), (32, 28045), (38, 28114), (41, 28138), (43, 28174), (44, 28183), (59, 28300),

Gene: Enceladus\_27 Start: 26563, Stop: 27006, Start Num: 15

Candidate Starts for Enceladus\_27:

(Start: 15 @26563 has 38 MA's), (Start: 16 @26566 has 11 MA's), (19, 26593), (24, 26650), (27, 26707), (28, 26710), (30, 26725), (32, 26731), (34, 26764), (37, 26785), (40, 26821), (54, 26920), (57, 26938),

Gene: Faith1\_29 Start: 27279, Stop: 27752, Start Num: 13

Candidate Starts for Faith1\_29:

(1, 27069), (4, 27135), (7, 27189), (Start: 13 @27279 has 14 MA's), (Start: 16 @27282 has 11 MA's), (17, 27300), (18, 27306), (19, 27309), (23, 27351), (24, 27366), (30, 27441), (38, 27516), (39, 27525), (44, 27585), (45, 27588), (49, 27630), (60, 27735),

Gene: Finemlucis\_29 Start: 27555, Stop: 28028, Start Num: 14

Candidate Starts for Finemlucis\_29:

(12, 27546), (Start: 14 @27555 has 4 MA's), (Start: 16 @27558 has 11 MA's), (17, 27576), (18, 27582), (19, 27585), (23, 27627), (24, 27642), (30, 27717), (34, 27756), (38, 27792), (45, 27864), (49, 27906), (55, 27936), (60, 28011),

Gene: Finnry\_29 Start: 27911, Stop: 28375, Start Num: 15

Candidate Starts for Finnry\_29:

(2, 27743), (3, 27749), (10, 27863), (11, 27866), (Start: 15 @27911 has 38 MA's), (Start: 16 @27914 has 11 MA's), (17, 27932), (19, 27941), (23, 27983), (29, 28067), (30, 28073), (32, 28079), (38,

28148), (41, 28172), (43, 28208), (44, 28217), (59, 28343),

Gene: Gabriela\_29 Start: 27547, Stop: 28014, Start Num: 14

Candidate Starts for Gabriela\_29:

(12, 27538), (Start: 14 @27547 has 4 MA's), (Start: 16 @27550 has 11 MA's), (17, 27568), (18, 27574), (19, 27577), (23, 27619), (24, 27634), (34, 27748), (38, 27784), (41, 27808), (44, 27853), (45, 27856), (49, 27898), (55, 27928), (60, 27997),

Gene: Gardann\_29 Start: 27281, Stop: 27754, Start Num: 13

Candidate Starts for Gardann\_29:

(1, 27071), (4, 27137), (7, 27191), (Start: 13 @27281 has 14 MA's), (Start: 16 @27284 has 11 MA's), (17, 27302), (18, 27308), (19, 27311), (23, 27353), (24, 27368), (30, 27443), (34, 27482), (38, 27518), (45, 27590), (49, 27632), (55, 27662), (60, 27737),

Gene: GuuelaD\_29 Start: 27316, Stop: 27786, Start Num: 16

Candidate Starts for GuuelaD\_29:

(1, 27103), (4, 27169), (7, 27223), (Start: 13 @27313 has 14 MA's), (Start: 16 @27316 has 11 MA's), (17, 27334), (18, 27340), (19, 27343), (23, 27385), (30, 27475), (34, 27514), (38, 27550), (45, 27622), (49, 27664), (55, 27694), (60, 27769),

Gene: Hafay\_29 Start: 27315, Stop: 27785, Start Num: 16

Candidate Starts for Hafay\_29:

(1, 27102), (4, 27168), (7, 27222), (Start: 13 @27312 has 14 MA's), (Start: 16 @27315 has 11 MA's), (17, 27333), (18, 27339), (19, 27342), (23, 27384), (24, 27399), (30, 27474), (34, 27513), (38, 27549), (45, 27621), (49, 27663), (55, 27693), (60, 27768),

Gene: Halena\_27 Start: 26590, Stop: 27033, Start Num: 15

Candidate Starts for Halena\_27:

(Start: 15 @26590 has 38 MA's), (Start: 16 @26593 has 11 MA's), (19, 26620), (24, 26677), (26, 26719), (27, 26734), (28, 26737), (32, 26758), (34, 26791),

Gene: Itos\_29 Start: 27279, Stop: 27752, Start Num: 13

Candidate Starts for Itos\_29:

(1, 27069), (4, 27135), (7, 27189), (Start: 13 @27279 has 14 MA's), (Start: 16 @27282 has 11 MA's), (17, 27300), (18, 27306), (19, 27309), (23, 27351), (24, 27366), (30, 27441), (38, 27516), (39, 27525), (44, 27585), (45, 27588), (49, 27630), (60, 27735),

Gene: Jobypre\_29 Start: 27907, Stop: 28371, Start Num: 15

Candidate Starts for Jobypre\_29:

(2, 27739), (3, 27745), (10, 27859), (11, 27862), (Start: 15 @27907 has 38 MA's), (Start: 16 @27910 has 11 MA's), (17, 27928), (19, 27937), (23, 27979), (29, 28063), (30, 28069), (32, 28075), (38, 28144), (41, 28168), (43, 28204), (44, 28213), (59, 28339),

Gene: JoeDirt\_27 Start: 26561, Stop: 27004, Start Num: 15

Candidate Starts for JoeDirt\_27:

(Start: 15 @26561 has 38 MA's), (Start: 16 @26564 has 11 MA's), (19, 26591), (24, 26648), (27, 26705), (28, 26708), (30, 26723), (32, 26729), (34, 26762), (37, 26783), (40, 26819), (54, 26918), (57, 26936),

Gene: Jubie\_29 Start: 27908, Stop: 28372, Start Num: 15

Candidate Starts for Jubie\_29:

(2, 27740), (3, 27746), (10, 27860), (11, 27863), (Start: 15 @27908 has 38 MA's), (Start: 16 @27911 has 11 MA's), (17, 27929), (19, 27938), (23, 27980), (29, 28064), (30, 28070), (32, 28076), (38,



28145), (41, 28169), (43, 28205), (44, 28214), (59, 28340),

Gene: Kahlid\_29 Start: 27287, Stop: 27757, Start Num: 16

Candidate Starts for Kahlid\_29:

(1, 27074), (4, 27140), (7, 27194), (Start: 13 @27284 has 14 MA's), (Start: 16 @27287 has 11 MA's), (17, 27305), (18, 27311), (19, 27314), (23, 27356), (24, 27371), (30, 27446), (34, 27485), (38, 27521), (45, 27593), (49, 27635), (55, 27665), (60, 27740),

Gene: Kingsolomon\_29 Start: 27907, Stop: 28371, Start Num: 15

Candidate Starts for Kingsolomon\_29:

(2, 27739), (3, 27745), (10, 27859), (11, 27862), (Start: 15 @27907 has 38 MA's), (Start: 16 @27910 has 11 MA's), (17, 27928), (19, 27937), (23, 27979), (29, 28063), (30, 28069), (32, 28075), (38, 28144), (41, 28168), (43, 28204), (44, 28213), (59, 28339),

Gene: Krypton555\_29 Start: 27808, Stop: 28269, Start Num: 15

Candidate Starts for Krypton555\_29:

(Start: 15 @27808 has 38 MA's), (Start: 16 @27811 has 11 MA's), (17, 27829), (18, 27835), (29, 27964), (30, 27970), (32, 27976), (41, 28069), (43, 28105), (44, 28114), (48, 28153), (59, 28237),

Gene: LeBron\_27 Start: 26605, Stop: 27048, Start Num: 15

Candidate Starts for LeBron\_27:

(Start: 15 @26605 has 38 MA's), (Start: 16 @26608 has 11 MA's), (19, 26635), (24, 26692), (27, 26749), (28, 26752), (30, 26767), (32, 26773), (34, 26806), (37, 26827), (40, 26863), (54, 26962), (57, 26980),

Gene: Lewan\_29 Start: 27279, Stop: 27752, Start Num: 13

Candidate Starts for Lewan\_29:

(1, 27069), (4, 27135), (7, 27189), (Start: 13 @27279 has 14 MA's), (Start: 16 @27282 has 11 MA's), (17, 27300), (18, 27306), (19, 27309), (23, 27351), (30, 27441), (34, 27480), (38, 27516), (45, 27588), (49, 27630), (55, 27660), (60, 27735),

Gene: LilDestine\_29 Start: 27281, Stop: 27751, Start Num: 16

Candidate Starts for LilDestine\_29:

(1, 27068), (4, 27134), (7, 27188), (Start: 13 @27278 has 14 MA's), (Start: 16 @27281 has 11 MA's), (17, 27299), (18, 27305), (19, 27308), (23, 27350), (24, 27365), (30, 27440), (34, 27479), (38, 27515), (45, 27587), (49, 27629), (55, 27659), (60, 27734),

Gene: Loadrie\_29 Start: 27314, Stop: 27784, Start Num: 16

Candidate Starts for Loadrie\_29:

(1, 27101), (4, 27167), (6, 27197), (7, 27221), (Start: 13 @27311 has 14 MA's), (Start: 16 @27314 has 11 MA's), (17, 27332), (18, 27338), (19, 27341), (23, 27383), (24, 27398), (30, 27473), (34, 27512), (38, 27548), (45, 27620), (55, 27692), (60, 27767),

Gene: Lolly9\_29 Start: 27674, Stop: 28135, Start Num: 15

Candidate Starts for Lolly9\_29:

(Start: 15 @27674 has 38 MA's), (Start: 16 @27677 has 11 MA's), (17, 27695), (18, 27701), (29, 27830), (30, 27836), (32, 27842), (41, 27935), (43, 27971), (59, 28103),

Gene: Lumos\_29 Start: 27907, Stop: 28368, Start Num: 16

Candidate Starts for Lumos\_29:

(2, 27736), (3, 27742), (10, 27856), (11, 27859), (Start: 15 @27904 has 38 MA's), (Start: 16 @27907 has 11 MA's), (17, 27925), (19, 27934), (23, 27976), (29, 28060), (30, 28066), (32, 28072), (38, 28141), (41, 28165), (43, 28201), (44, 28210), (59, 28336),

Gene: MAckerman\_27 Start: 26579, Stop: 27022, Start Num: 15

Candidate Starts for MAckerman\_27:

(Start: 15 @26579 has 38 MA's), (Start: 16 @26582 has 11 MA's), (19, 26609), (24, 26666), (27, 26723), (28, 26726), (30, 26741), (32, 26747), (34, 26780), (37, 26801), (40, 26837), (57, 26954),

Gene: Miley16\_29 Start: 27279, Stop: 27752, Start Num: 13

Candidate Starts for Miley16\_29:

(1, 27069), (4, 27135), (7, 27189), (Start: 13 @27279 has 14 MA's), (Start: 16 @27282 has 11 MA's), (17, 27300), (18, 27306), (19, 27309), (23, 27351), (24, 27366), (30, 27441), (38, 27516), (39, 27525), (44, 27585), (45, 27588), (49, 27630), (60, 27735),

Gene: MiniLon\_29 Start: 27674, Stop: 28135, Start Num: 15

Candidate Starts for MiniLon\_29:

(Start: 15 @27674 has 38 MA's), (Start: 16 @27677 has 11 MA's), (17, 27695), (18, 27701), (29, 27830), (30, 27836), (32, 27842), (41, 27935), (43, 27971), (59, 28103),

Gene: MiniMac\_29 Start: 27675, Stop: 28136, Start Num: 15

Candidate Starts for MiniMac\_29:

(Start: 15 @27675 has 38 MA's), (Start: 16 @27678 has 11 MA's), (17, 27696), (18, 27702), (29, 27831), (30, 27837), (32, 27843), (41, 27936), (43, 27972), (59, 28104),

Gene: MkaliMitinis3\_29 Start: 27279, Stop: 27752, Start Num: 13

Candidate Starts for MkaliMitinis3\_29:

(1, 27069), (4, 27135), (7, 27189), (Start: 13 @27279 has 14 MA's), (Start: 16 @27282 has 11 MA's), (17, 27300), (18, 27306), (19, 27309), (23, 27351), (24, 27366), (30, 27441), (34, 27480), (38, 27516), (45, 27588), (49, 27630), (55, 27660), (60, 27735),

Gene: Moostard\_29 Start: 27910, Stop: 28374, Start Num: 15

Candidate Starts for Moostard\_29:

(2, 27742), (3, 27748), (10, 27862), (11, 27865), (Start: 15 @27910 has 38 MA's), (Start: 16 @27913 has 11 MA's), (17, 27931), (19, 27940), (23, 27982), (29, 28066), (30, 28072), (32, 28078), (38, 28147), (41, 28171), (43, 28207), (44, 28216), (59, 28342),

Gene: MsGreen\_29 Start: 27907, Stop: 28371, Start Num: 15

Candidate Starts for MsGreen\_29:

(2, 27739), (3, 27745), (10, 27859), (11, 27862), (Start: 15 @27907 has 38 MA's), (Start: 16 @27910 has 11 MA's), (17, 27928), (19, 27937), (23, 27979), (29, 28063), (30, 28069), (32, 28075), (38, 28144), (41, 28168), (43, 28204), (44, 28213), (59, 28339),

Gene: Netyap\_29 Start: 27279, Stop: 27752, Start Num: 13

Candidate Starts for Netyap\_29:

(1, 27069), (4, 27135), (7, 27189), (Start: 13 @27279 has 14 MA's), (Start: 16 @27282 has 11 MA's), (17, 27300), (18, 27306), (19, 27309), (23, 27351), (24, 27366), (30, 27441), (38, 27516), (39, 27525), (44, 27585), (45, 27588), (49, 27630), (60, 27735),

Gene: Nicholas\_29 Start: 27907, Stop: 28371, Start Num: 15

Candidate Starts for Nicholas\_29:

(2, 27739), (3, 27745), (10, 27859), (11, 27862), (Start: 15 @27907 has 38 MA's), (Start: 16 @27910 has 11 MA's), (17, 27928), (19, 27937), (23, 27979), (29, 28063), (30, 28069), (32, 28075), (38, 28144), (41, 28168), (43, 28204), (44, 28213), (59, 28339),

Gene: Nicholasp3\_29 Start: 27284, Stop: 27754, Start Num: 16

Candidate Starts for Nicholasp3\_29:

(1, 27071), (4, 27137), (7, 27191), (Start: 13 @27281 has 14 MA's), (Start: 16 @27284 has 11 MA's), (17, 27302), (18, 27308), (19, 27311), (23, 27353), (24, 27368), (30, 27443), (34, 27482), (38, 27518), (45, 27590), (49, 27632), (55, 27662), (60, 27737),

Gene: OhShagHennessy\_27 Start: 26544, Stop: 26987, Start Num: 15

Candidate Starts for OhShagHennessy\_27:

(Start: 15 @26544 has 38 MA's), (Start: 16 @26547 has 11 MA's), (19, 26574), (24, 26631), (27, 26688), (28, 26691), (30, 26706), (32, 26712), (34, 26745), (37, 26766), (40, 26802), (54, 26901), (57, 26919),

Gene: Rose5\_27 Start: 26579, Stop: 27022, Start Num: 15

Candidate Starts for Rose5\_27:

(Start: 15 @26579 has 38 MA's), (Start: 16 @26582 has 11 MA's), (19, 26609), (24, 26666), (26, 26708), (27, 26723), (28, 26726), (32, 26747), (34, 26780),

Gene: Rumpelstiltskin\_29 Start: 27553, Stop: 28020, Start Num: 14

Candidate Starts for Rumpelstiltskin\_29:

(12, 27544), (Start: 14 @27553 has 4 MA's), (Start: 16 @27556 has 11 MA's), (17, 27574), (18, 27580), (19, 27583), (23, 27625), (24, 27640), (34, 27754), (38, 27790), (41, 27814), (44, 27859), (45, 27862), (49, 27904), (55, 27934), (60, 28003),

Gene: Samty\_29 Start: 27910, Stop: 28374, Start Num: 15

Candidate Starts for Samty\_29:

(2, 27742), (3, 27748), (10, 27862), (11, 27865), (Start: 15 @27910 has 38 MA's), (Start: 16 @27913 has 11 MA's), (17, 27931), (19, 27940), (23, 27982), (29, 28066), (30, 28072), (32, 28078), (38, 28147), (41, 28171), (43, 28207), (44, 28216), (59, 28342),

Gene: Silverleaf\_27 Start: 26579, Stop: 27022, Start Num: 15

Candidate Starts for Silverleaf\_27:

(Start: 15 @26579 has 38 MA's), (Start: 16 @26582 has 11 MA's), (19, 26609), (24, 26666), (26, 26708), (27, 26723), (28, 26726), (32, 26747), (34, 26780),

Gene: Snenia\_29 Start: 27908, Stop: 28372, Start Num: 15

Candidate Starts for Snenia\_29:

(2, 27740), (3, 27746), (10, 27860), (11, 27863), (Start: 15 @27908 has 38 MA's), (Start: 16 @27911 has 11 MA's), (17, 27929), (19, 27938), (23, 27980), (29, 28064), (30, 28070), (32, 28076), (38, 28145), (41, 28169), (43, 28205), (44, 28214), (59, 28340),

Gene: Tourach\_29 Start: 27276, Stop: 27743, Start Num: 13

Candidate Starts for Tourach\_29:

(4, 27132), (7, 27186), (Start: 13 @27276 has 14 MA's), (Start: 16 @27279 has 11 MA's), (17, 27297), (18, 27303), (19, 27306), (23, 27348), (24, 27363), (30, 27438), (34, 27477), (36, 27489), (38, 27513), (39, 27522), (41, 27537), (45, 27585), (49, 27627), (55, 27657), (60, 27726),

Gene: Tyson\_27 Start: 26579, Stop: 27022, Start Num: 15

Candidate Starts for Tyson\_27:

(Start: 15 @26579 has 38 MA's), (Start: 16 @26582 has 11 MA's), (19, 26609), (24, 26666), (26, 26708), (27, 26723), (28, 26726), (32, 26747), (34, 26780),

Gene: UPIE\_27 Start: 26577, Stop: 27020, Start Num: 15

Candidate Starts for UPIE\_27:

(Start: 15 @26577 has 38 MA's), (Start: 16 @26580 has 11 MA's), (19, 26607), (24, 26664), (27, 26721), (28, 26724), (30, 26739), (32, 26745), (34, 26778), (37, 26799), (40, 26835), (54, 26934), (57, 26952),

Gene: Vetrix\_29 Start: 27285, Stop: 27758, Start Num: 13

Candidate Starts for Vetrix\_29:

(1, 27075), (4, 27141), (7, 27195), (Start: 13 @27285 has 14 MA's), (Start: 16 @27288 has 11 MA's), (17, 27306), (18, 27312), (19, 27315), (23, 27357), (30, 27447), (34, 27486), (38, 27522), (45, 27594), (49, 27636), (55, 27666), (60, 27741),

Gene: Wamburgxpress\_27 Start: 26592, Stop: 27035, Start Num: 15

Candidate Starts for Wamburgxpress\_27:

(Start: 15 @26592 has 38 MA's), (Start: 16 @26595 has 11 MA's), (19, 26622), (24, 26679), (26, 26721), (27, 26736), (28, 26739), (32, 26760), (34, 26793), (54, 26949),

Gene: Whirlwind\_30 Start: 27642, Stop: 28112, Start Num: 15

Candidate Starts for Whirlwind\_30:

(Start: 15 @27642 has 38 MA's), (Start: 16 @27645 has 11 MA's), (17, 27663), (18, 27669), (29, 27798), (30, 27804), (32, 27810), (41, 27903), (43, 27939), (44, 27948), (48, 27987), (59, 28080),

Gene: Wigglewigggle\_29 Start: 27314, Stop: 27784, Start Num: 16

Candidate Starts for Wigglewigggle\_29:

(1, 27101), (4, 27167), (7, 27221), (Start: 13 @27311 has 14 MA's), (Start: 16 @27314 has 11 MA's), (17, 27332), (18, 27338), (19, 27341), (23, 27383), (24, 27398), (30, 27473), (34, 27512), (38, 27548), (45, 27620), (49, 27662), (55, 27692), (60, 27767),

Gene: Wilder\_29 Start: 27284, Stop: 27757, Start Num: 13

Candidate Starts for Wilder\_29:

(1, 27074), (4, 27140), (7, 27194), (Start: 13 @27284 has 14 MA's), (Start: 16 @27287 has 11 MA's), (17, 27305), (18, 27311), (19, 27314), (23, 27356), (24, 27371), (30, 27446), (34, 27485), (38, 27521), (45, 27593), (49, 27635), (55, 27665), (60, 27740),

Gene: Winky\_29 Start: 27279, Stop: 27752, Start Num: 13

Candidate Starts for Winky\_29:

(1, 27069), (4, 27135), (7, 27189), (Start: 13 @27279 has 14 MA's), (Start: 16 @27282 has 11 MA's), (17, 27300), (18, 27306), (19, 27309), (23, 27351), (24, 27366), (30, 27441), (38, 27516), (39, 27525), (44, 27585), (45, 27588), (49, 27630), (60, 27735),

Gene: Wyatt2\_27 Start: 26579, Stop: 27022, Start Num: 15

Candidate Starts for Wyatt2\_27:

(Start: 15 @26579 has 38 MA's), (Start: 16 @26582 has 11 MA's), (19, 26609), (24, 26666), (26, 26708), (27, 26723), (28, 26726), (32, 26747), (34, 26780),

Gene: Zakai\_29 Start: 27541, Stop: 28008, Start Num: 14

Candidate Starts for Zakai\_29:

(12, 27532), (Start: 14 @27541 has 4 MA's), (Start: 16 @27544 has 11 MA's), (17, 27562), (18, 27568), (19, 27571), (23, 27613), (24, 27628), (30, 27703), (34, 27742), (38, 27778), (41, 27802), (45, 27850), (49, 27892), (55, 27922), (60, 27991),

Gene: Zaria\_27 Start: 26593, Stop: 27036, Start Num: 15

Candidate Starts for Zaria\_27:

(Start: 15 @26593 has 38 MA's), (Start: 16 @26596 has 11 MA's), (19, 26623), (24, 26680), (27, 26737), (28, 26740), (30, 26755), (32, 26761), (34, 26794), (37, 26815), (40, 26851), (54, 26950), (57,

26968),

Gene: ZhongYanYuan\_28 Start: 27103, Stop: 27573, Start Num: 16

Candidate Starts for ZhongYanYuan\_28:

(1, 26890), (7, 27010), (Start: 13 @27100 has 14 MA's), (Start: 16 @27103 has 11 MA's), (17, 27121), (18, 27127), (19, 27130), (21, 27163), (23, 27172), (24, 27187), (30, 27262), (38, 27337), (39, 27346), (44, 27406), (45, 27409), (49, 27451), (60, 27556),