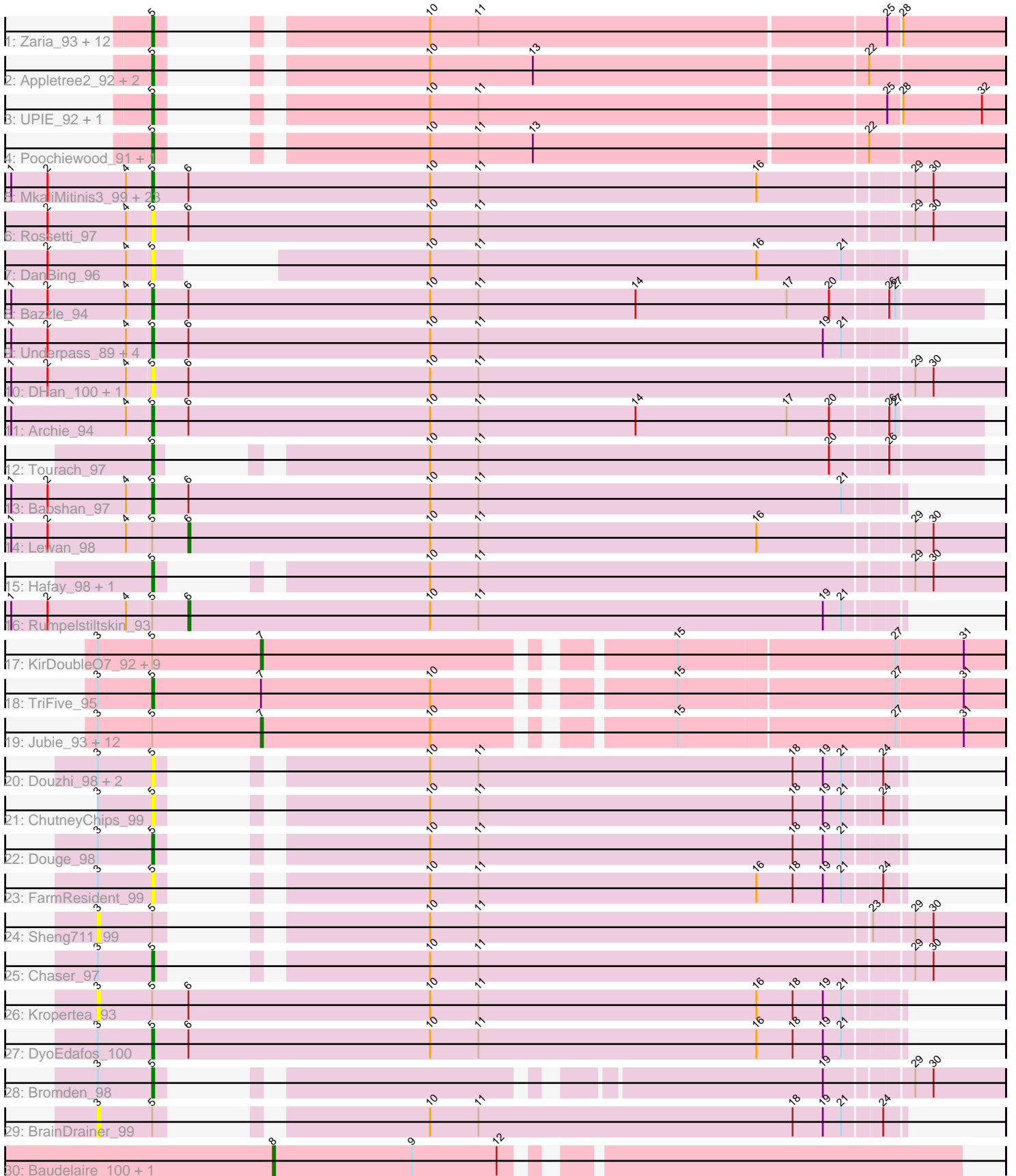


Pham 292677



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 292677 Report

This analysis was run 04/18/26 on database version 643.

Pham number 292677 has 99 members, 24 are drafts.

Phages represented in each track:

- Track 1 : Zaria\_93, AvadaKedavra\_93, Wyatt2\_94, Silverleaf\_92, LeBron\_92, Rose5\_94, Tyson\_94, Acquire49\_93, Halena\_90, MAckerman\_91, Enceladus\_90, Calm\_94, Wamburgxpress\_92
- Track 2 : Appletree2\_92, JoeDirt\_94, OhShagHennessy\_89
- Track 3 : UPIE\_92, CicholasNage\_90
- Track 4 : Poochiewood\_91, DirkDirk\_90
- Track 5 : MkaliMitinis3\_99, Breezona\_97, OverPar\_99, LilDestine\_95, Faith1\_97, Loadrie\_96, DrSeegs\_96, BigCheese\_97, Miley16\_97, GuuelaD\_94, Sarshaun\_98, Zakai\_98, Wigglewiggles\_97, Itos\_97, Winky\_97, SoJulia\_99, Vetrix\_95, Crossroads\_97, Soap141\_97, Wilder\_98, Netyap\_96, Gabriela\_97, Lynnae\_98, BobsGarage\_96
- Track 6 : Rossetti\_97
- Track 7 : DanBing\_96
- Track 8 : Bazzle\_94
- Track 9 : Underpass\_89, Kahlid\_96, Nicholasp3\_97, Gardann\_97, Finemlucis\_98
- Track 10 : DHan\_100, ZhongYanYuan\_94
- Track 11 : Archie\_94
- Track 12 : Tourach\_97
- Track 13 : Baoshan\_97
- Track 14 : Lewan\_98
- Track 15 : Hafay\_98, Claus\_96
- Track 16 : Rumpelstiltskin\_93
- Track 17 : KirDoubleO7\_92, BourbonZero\_95, Kingsolomon\_92, MiniLon\_98, Ellson\_93, MiniMac\_98, DuncansLeg\_94, Lolly9\_93, Nicholas\_92, LiyuLake\_93
- Track 18 : TriFive\_95
- Track 19 : Jubie\_93, Moostard\_91, Snenia\_93, Finnry\_94, Jobypre\_94, Clautastrophe\_92, Red305\_95, Krypton555\_96, MsGreen\_94, Bellis\_94, Samty\_93, Lumos\_94, Whirlwind\_95
- Track 20 : Douzhi\_98, Quby\_98, PYPDinur\_98
- Track 21 : ChutneyChips\_99
- Track 22 : Douge\_98
- Track 23 : FarmResident\_99
- Track 24 : Sheng711\_99
- Track 25 : Chaser\_97
- Track 26 : Kropertea\_93
- Track 27 : DyoEdafos\_100
- Track 28 : Bromden\_98

- Track 29 : BrainDrainer\_99
- Track 30 : Baudelaire\_100, Aegeus\_100

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

The start number called the most often in the published annotations is 5, it was called in 53 of the 75 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Acquire49\_93, Appletree2\_92, Archie\_94, AvadaKedavra\_93, Baoshan\_97, Bazzle\_94, BigCheese\_97, BobsGarage\_96, Breezona\_97, Bromden\_98, Calm\_94, Chaser\_97, ChutneyChips\_99, CicholasNage\_90, Claus\_96, Crossroads\_97, DHan\_100, DanBing\_96, DirkDirk\_90, Douge\_98, Douzhi\_98, DrSeegs\_96, DyoEdafos\_100, Enceladus\_90, Faith1\_97, FarmResident\_99, Finemlucis\_98, Gabriela\_97, Gardann\_97, GuuelaD\_94, Hafay\_98, Halena\_90, Itos\_97, JoeDirt\_94, Kahlid\_96, LeBron\_92, LilDestine\_95, Loadrie\_96, Lynnae\_98, MAckerman\_91, Miley16\_97, MkaliMitinis3\_99, Netyap\_96, Nicholasp3\_97, OhShagHennessy\_89, OverPar\_99, PYPDinur\_98, Poochiewood\_91, Quby\_98, Rose5\_94, Rossetti\_97, Sarshaun\_98, Silverleaf\_92, SoJulia\_99, Soap141\_97, Tourach\_97, TriFive\_95, Tyson\_94, UPIE\_92, Underpass\_89, Vetrix\_95, Wamburggrxpress\_92, Wigglewiggles\_97, Wilder\_98, Winky\_97, Wyatt2\_94, Zakai\_98, Zaria\_93, ZhongYanYuan\_94,

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

- Bellis\_94, BourbonZero\_95, BrainDrainer\_99, Clautastrophe\_92, DuncansLeg\_94, Ellson\_93, Finnry\_94, Jobypre\_94, Jubie\_93, Kingsolomon\_92, KirDoubleO7\_92, Kropertea\_93, Krypton555\_96, Lewan\_98, LiyuLake\_93, Lolly9\_93, Lumos\_94, MiniLon\_98, MiniMac\_98, Moostard\_91, MsGreen\_94, Nicholas\_92, Red305\_95, Rumpelstiltskin\_93, Samty\_93, Sheng711\_99, Snenia\_93, Whirlwind\_95,

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

- Aegeus\_100, Baudelaire\_100,

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

Start 3:

- Found in 36 of 99 ( 36.4% ) of genes in pham
- No Manual Annotations of this start.
- Called 8.3% of time when present
- Phage (with cluster) where this start called: BrainDrainer\_99 (L4), Kropertea\_93 (L4), Sheng711\_99 (L4),

Start 5:

- Found in 97 of 99 ( 98.0% ) of genes in pham
- Manual Annotations of this start: 53 of 75
- Called 71.1% of time when present
- Phage (with cluster) where this start called: Acquire49\_93 (L1), Appletree2\_92 (L1), Archie\_94 (L2), AvadaKedavra\_93 (L1), Baoshan\_97 (L2), Bazzle\_94 (L2), BigCheese\_97 (L2), BobsGarage\_96 (L2), Breezona\_97 (L2), Bromden\_98 (L4), Calm\_94 (L1), Chaser\_97 (L4), ChutneyChips\_99 (L4), CicholasNage\_90 (L1),

Claus\_96 (L2), Crossroads\_97 (L2), DHan\_100 (L2), DanBing\_96 (L2), DirkDirk\_90 (L1), Douge\_98 (L4), Douzhi\_98 (L4), DrSeegs\_96 (L2), DyoEdafos\_100 (L4), Enceladus\_90 (L1), Faith1\_97 (L2), FarmResident\_99 (L4), Finemlucis\_98 (L2), Gabriela\_97 (L2), Gardann\_97 (L2), GuuelaD\_94 (L2), Hafay\_98 (L2), Halena\_90 (L1), Itos\_97 (L2), JoeDirt\_94 (L1), Kahlid\_96 (L2), LeBron\_92 (L1), LilDestine\_95 (L2), Loadrie\_96 (L2), Lynnae\_98 (L2), MAckerman\_91 (L1), Miley16\_97 (L2), MkaliMitinis3\_99 (L2), Netyap\_96 (L2), Nicholasp3\_97 (L2), OhShagHennessy\_89 (L1), OverPar\_99 (L2), PYPDinur\_98 (L4), Poochiewood\_91 (L1), Quby\_98 (L4), Rose5\_94 (L1), Rossetti\_97 (L2), Sarshaun\_98 (L2), Silverleaf\_92 (L1), SoJulia\_99 (L2), Soap141\_97 (L2), Tourach\_97 (L2), TriFive\_95 (L3), Tyson\_94 (L1), UPIE\_92 (L1), Underpass\_89 (L2), Vatrix\_95 (L2), Wamburggrxpress\_92 (L1), Wigglewiggle\_97 (L2), Wilder\_98 (L2), Winky\_97 (L2), Wyatt2\_94 (L1), Zakai\_98 (L2), Zaria\_93 (L1), ZhongYanYuan\_94 (L2),

#### Start 6:

- Found in 39 of 99 ( 39.4% ) of genes in pham
- Manual Annotations of this start: 2 of 75
- Called 5.1% of time when present
- Phage (with cluster) where this start called: Lewan\_98 (L2), Rumpelstiltskin\_93 (L2),

#### Start 7:

- Found in 24 of 99 ( 24.2% ) of genes in pham
- Manual Annotations of this start: 18 of 75
- Called 95.8% of time when present
- Phage (with cluster) where this start called: Bellis\_94 (L3), BourbonZero\_95 (L3), Clautastrophe\_92 (L3), DuncansLeg\_94 (L3), Ellson\_93 (L3), Finnry\_94 (L3), Jobypre\_94 (L3), Jubie\_93 (L3), Kingsolomon\_92 (L3), KirDoubleO7\_92 (L3), Krypton555\_96 (L3), LiyuLake\_93 (L3), Lolly9\_93 (L3), Lumos\_94 (L3), MiniLon\_98 (L3), MiniMac\_98 (L3), Moostard\_91 (L3), MsGreen\_94 (L3), Nicholas\_92 (L3), Red305\_95 (L3), Samty\_93 (L3), Snenia\_93 (L3), Whirlwind\_95 (L3),

#### Start 8:

- Found in 2 of 99 ( 2.0% ) of genes in pham
- Manual Annotations of this start: 2 of 75
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aegeus\_100 (L5), Baudelaire\_100 (L5),

### 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 5 was manually annotated 19 times for cluster L1.

Info for manual annotations of cluster L2:

- Start number 5 was manually annotated 29 times for cluster L2.
- Start number 6 was manually annotated 2 times for cluster L2.

Info for manual annotations of cluster L3:

- Start number 5 was manually annotated 1 time for cluster L3.
- Start number 7 was manually annotated 18 times for cluster L3.

Info for manual annotations of cluster L4:

- Start number 5 was manually annotated 4 times for cluster L4.

Info for manual annotations of cluster L5:

- Start number 8 was manually annotated 2 times for cluster L5.

### **Gene Information:**

Gene: Acquire49\_93 Start: 58116, Stop: 58478, Start Num: 5

Candidate Starts for Acquire49\_93:

(Start: 5 @58116 has 53 MA's), (10, 58200), (11, 58224), (25, 58422), (28, 58428),

Gene: Aegeus\_100 Start: 60620, Stop: 60937, Start Num: 8

Candidate Starts for Aegeus\_100:

(Start: 8 @60620 has 2 MA's), (9, 60689), (12, 60731),

Gene: Appletree2\_92 Start: 57876, Stop: 58238, Start Num: 5

Candidate Starts for Appletree2\_92:

(Start: 5 @57876 has 53 MA's), (10, 57960), (13, 58011), (22, 58173),

Gene: Archie\_94 Start: 59796, Stop: 60203, Start Num: 5

Candidate Starts for Archie\_94:

(1, 59727), (4, 59784), (Start: 5 @59796 has 53 MA's), (Start: 6 @59814 has 2 MA's), (10, 59934), (11, 59958), (14, 60036), (17, 60111), (20, 60132), (26, 60159), (27, 60162),

Gene: AvadaKedavra\_93 Start: 58228, Stop: 58590, Start Num: 5

Candidate Starts for AvadaKedavra\_93:

(Start: 5 @58228 has 53 MA's), (10, 58312), (11, 58336), (25, 58534), (28, 58540),

Gene: Baoshan\_97 Start: 60451, Stop: 60819, Start Num: 5

Candidate Starts for Baoshan\_97:

(1, 60382), (2, 60400), (4, 60439), (Start: 5 @60451 has 53 MA's), (Start: 6 @60469 has 2 MA's), (10, 60589), (11, 60613), (21, 60793),

Gene: Baudelaire\_100 Start: 60620, Stop: 60937, Start Num: 8

Candidate Starts for Baudelaire\_100:

(Start: 8 @60620 has 2 MA's), (9, 60689), (12, 60731),

Gene: Bazzle\_94 Start: 60352, Stop: 60759, Start Num: 5

Candidate Starts for Bazzle\_94:

(1, 60283), (2, 60301), (4, 60340), (Start: 5 @60352 has 53 MA's), (Start: 6 @60370 has 2 MA's), (10, 60490), (11, 60514), (14, 60592), (17, 60667), (20, 60688), (26, 60715), (27, 60718),

Gene: Bellis\_94 Start: 59981, Stop: 60322, Start Num: 7

Candidate Starts for Bellis\_94:

(3, 59900), (Start: 5 @59927 has 53 MA's), (Start: 7 @59981 has 18 MA's), (10, 60065), (15, 60164), (27, 60269), (31, 60302),

Gene: BigCheese\_97 Start: 60561, Stop: 60977, Start Num: 5

Candidate Starts for BigCheese\_97:

(1, 60492), (2, 60510), (4, 60549), (Start: 5 @60561 has 53 MA's), (Start: 6 @60579 has 2 MA's), (10, 60699), (11, 60723), (16, 60861), (29, 60933), (30, 60942),

Gene: BobsGarage\_96 Start: 60561, Stop: 60977, Start Num: 5

Candidate Starts for BobsGarage\_96:

(1, 60492), (2, 60510), (4, 60549), (Start: 5 @60561 has 53 MA's), (Start: 6 @60579 has 2 MA's), (10, 60699), (11, 60723), (16, 60861), (29, 60933), (30, 60942),

Gene: BourbonZero\_95 Start: 60007, Stop: 60348, Start Num: 7

Candidate Starts for BourbonZero\_95:

(3, 59926), (Start: 5 @59953 has 53 MA's), (Start: 7 @60007 has 18 MA's), (15, 60190), (27, 60295), (31, 60328),

Gene: BrainDrainer\_99 Start: 60245, Stop: 60586, Start Num: 3

Candidate Starts for BrainDrainer\_99:

(3, 60245), (Start: 5 @60272 has 53 MA's), (10, 60356), (11, 60380), (18, 60536), (19, 60551), (21, 60560), (24, 60578),

Gene: Breezona\_97 Start: 60567, Stop: 60983, Start Num: 5

Candidate Starts for Breezona\_97:

(1, 60498), (2, 60516), (4, 60555), (Start: 5 @60567 has 53 MA's), (Start: 6 @60585 has 2 MA's), (10, 60705), (11, 60729), (16, 60867), (29, 60939), (30, 60948),

Gene: Bromden\_98 Start: 61150, Stop: 61488, Start Num: 5

Candidate Starts for Bromden\_98:

(3, 61123), (Start: 5 @61150 has 53 MA's), (19, 61405), (29, 61444), (30, 61453),

Gene: Calm\_94 Start: 58127, Stop: 58489, Start Num: 5

Candidate Starts for Calm\_94:

(Start: 5 @58127 has 53 MA's), (10, 58211), (11, 58235), (25, 58433), (28, 58439),

Gene: Chaser\_97 Start: 59573, Stop: 59935, Start Num: 5

Candidate Starts for Chaser\_97:

(3, 59546), (Start: 5 @59573 has 53 MA's), (10, 59657), (11, 59681), (29, 59891), (30, 59900),

Gene: ChutneyChips\_99 Start: 60304, Stop: 60618, Start Num: 5

Candidate Starts for ChutneyChips\_99:

(3, 60277), (Start: 5 @60304 has 53 MA's), (10, 60388), (11, 60412), (18, 60568), (19, 60583), (21, 60592), (24, 60610),

Gene: CicholasNage\_90 Start: 57780, Stop: 58142, Start Num: 5

Candidate Starts for CicholasNage\_90:

(Start: 5 @57780 has 53 MA's), (10, 57864), (11, 57888), (25, 58086), (28, 58092), (32, 58131),

Gene: Claus\_96 Start: 60276, Stop: 60638, Start Num: 5

Candidate Starts for Claus\_96:

(Start: 5 @60276 has 53 MA's), (10, 60360), (11, 60384), (29, 60594), (30, 60603),

Gene: Clautastrophe\_92 Start: 59976, Stop: 60317, Start Num: 7

Candidate Starts for Clautastrophe\_92:

(3, 59895), (Start: 5 @59922 has 53 MA's), (Start: 7 @59976 has 18 MA's), (10, 60060), (15, 60159), (27, 60264), (31, 60297),

Gene: Crossroads\_97 Start: 60279, Stop: 60695, Start Num: 5

Candidate Starts for Crossroads\_97:

(1, 60210), (2, 60228), (4, 60267), (Start: 5 @60279 has 53 MA's), (Start: 6 @60297 has 2 MA's), (10, 60417), (11, 60441), (16, 60579), (29, 60651), (30, 60660),

Gene: DHan\_100 Start: 60498, Stop: 60914, Start Num: 5

Candidate Starts for DHan\_100:

(1, 60429), (2, 60447), (4, 60486), (Start: 5 @60498 has 53 MA's), (Start: 6 @60516 has 2 MA's), (10, 60636), (11, 60660), (29, 60870), (30, 60879),

Gene: DanBing\_96 Start: 60191, Stop: 60511, Start Num: 5

Candidate Starts for DanBing\_96:

(2, 60140), (4, 60179), (Start: 5 @60191 has 53 MA's), (10, 60281), (11, 60305), (16, 60443), (21, 60485),

Gene: DirkDirk\_90 Start: 57456, Stop: 57818, Start Num: 5

Candidate Starts for DirkDirk\_90:

(Start: 5 @57456 has 53 MA's), (10, 57540), (11, 57564), (13, 57591), (22, 57753),

Gene: Douge\_98 Start: 59692, Stop: 60006, Start Num: 5

Candidate Starts for Douge\_98:

(3, 59665), (Start: 5 @59692 has 53 MA's), (10, 59776), (11, 59800), (18, 59956), (19, 59971), (21, 59980),

Gene: Douzhi\_98 Start: 59961, Stop: 60275, Start Num: 5

Candidate Starts for Douzhi\_98:

(3, 59934), (Start: 5 @59961 has 53 MA's), (10, 60045), (11, 60069), (18, 60225), (19, 60240), (21, 60249), (24, 60267),

Gene: DrSeegs\_96 Start: 60567, Stop: 60983, Start Num: 5

Candidate Starts for DrSeegs\_96:

(1, 60498), (2, 60516), (4, 60555), (Start: 5 @60567 has 53 MA's), (Start: 6 @60585 has 2 MA's), (10, 60705), (11, 60729), (16, 60867), (29, 60939), (30, 60948),

Gene: DuncansLeg\_94 Start: 59995, Stop: 60336, Start Num: 7

Candidate Starts for DuncansLeg\_94:

(3, 59914), (Start: 5 @59941 has 53 MA's), (Start: 7 @59995 has 18 MA's), (15, 60178), (27, 60283), (31, 60316),

Gene: DyoEdafos\_100 Start: 60281, Stop: 60649, Start Num: 5

Candidate Starts for DyoEdafos\_100:

(3, 60254), (Start: 5 @60281 has 53 MA's), (Start: 6 @60299 has 2 MA's), (10, 60419), (11, 60443), (16, 60581), (18, 60599), (19, 60614), (21, 60623),

Gene: Ellson\_93 Start: 60310, Stop: 60651, Start Num: 7

Candidate Starts for Ellson\_93:

(3, 60229), (Start: 5 @60256 has 53 MA's), (Start: 7 @60310 has 18 MA's), (15, 60493), (27, 60598), (31, 60631),

Gene: Enceladus\_90 Start: 58157, Stop: 58519, Start Num: 5

Candidate Starts for Enceladus\_90:

(Start: 5 @58157 has 53 MA's), (10, 58241), (11, 58265), (25, 58463), (28, 58469),

Gene: Faith1\_97 Start: 60204, Stop: 60620, Start Num: 5

Candidate Starts for Faith1\_97:

(1, 60135), (2, 60153), (4, 60192), (Start: 5 @60204 has 53 MA's), (Start: 6 @60222 has 2 MA's), (10, 60342), (11, 60366), (16, 60504), (29, 60576), (30, 60585),

Gene: FarmResident\_99 Start: 59848, Stop: 60162, Start Num: 5

Candidate Starts for FarmResident\_99:

(3, 59821), (Start: 5 @59848 has 53 MA's), (10, 59932), (11, 59956), (16, 60094), (18, 60112), (19, 60127), (21, 60136), (24, 60154),

Gene: Finemlucis\_98 Start: 61312, Stop: 61680, Start Num: 5

Candidate Starts for Finemlucis\_98:

(1, 61243), (2, 61261), (4, 61300), (Start: 5 @61312 has 53 MA's), (Start: 6 @61330 has 2 MA's), (10, 61450), (11, 61474), (19, 61645), (21, 61654),

Gene: Finnry\_94 Start: 60329, Stop: 60670, Start Num: 7

Candidate Starts for Finnry\_94:

(3, 60248), (Start: 5 @60275 has 53 MA's), (Start: 7 @60329 has 18 MA's), (10, 60413), (15, 60512), (27, 60617), (31, 60650),

Gene: Gabriela\_97 Start: 59550, Stop: 59966, Start Num: 5

Candidate Starts for Gabriela\_97:

(1, 59481), (2, 59499), (4, 59538), (Start: 5 @59550 has 53 MA's), (Start: 6 @59568 has 2 MA's), (10, 59688), (11, 59712), (16, 59850), (29, 59922), (30, 59931),

Gene: Gardann\_97 Start: 60045, Stop: 60413, Start Num: 5

Candidate Starts for Gardann\_97:

(1, 59976), (2, 59994), (4, 60033), (Start: 5 @60045 has 53 MA's), (Start: 6 @60063 has 2 MA's), (10, 60183), (11, 60207), (19, 60378), (21, 60387),

Gene: GuuelaD\_94 Start: 60163, Stop: 60579, Start Num: 5

Candidate Starts for GuuelaD\_94:

(1, 60094), (2, 60112), (4, 60151), (Start: 5 @60163 has 53 MA's), (Start: 6 @60181 has 2 MA's), (10, 60301), (11, 60325), (16, 60463), (29, 60535), (30, 60544),

Gene: Hafay\_98 Start: 60271, Stop: 60633, Start Num: 5

Candidate Starts for Hafay\_98:

(Start: 5 @60271 has 53 MA's), (10, 60355), (11, 60379), (29, 60589), (30, 60598),

Gene: Halena\_90 Start: 57043, Stop: 57405, Start Num: 5

Candidate Starts for Halena\_90:

(Start: 5 @57043 has 53 MA's), (10, 57127), (11, 57151), (25, 57349), (28, 57355),

Gene: Itos\_97 Start: 59110, Stop: 59526, Start Num: 5

Candidate Starts for Itos\_97:

(1, 59041), (2, 59059), (4, 59098), (Start: 5 @59110 has 53 MA's), (Start: 6 @59128 has 2 MA's), (10, 59248), (11, 59272), (16, 59410), (29, 59482), (30, 59491),

Gene: Jobypre\_94 Start: 59976, Stop: 60317, Start Num: 7

Candidate Starts for Jobypre\_94:

(3, 59895), (Start: 5 @59922 has 53 MA's), (Start: 7 @59976 has 18 MA's), (10, 60060), (15, 60159), (27, 60264), (31, 60297),

Gene: JoeDirt\_94 Start: 58718, Stop: 59080, Start Num: 5

Candidate Starts for JoeDirt\_94:

(Start: 5 @58718 has 53 MA's), (10, 58802), (13, 58853), (22, 59015),

Gene: Jubie\_93 Start: 60111, Stop: 60452, Start Num: 7

Candidate Starts for Jubie\_93:

(3, 60030), (Start: 5 @60057 has 53 MA's), (Start: 7 @60111 has 18 MA's), (10, 60195), (15, 60294), (27, 60399), (31, 60432),

Gene: Kahlid\_96 Start: 59963, Stop: 60331, Start Num: 5

Candidate Starts for Kahlid\_96:

(1, 59894), (2, 59912), (4, 59951), (Start: 5 @59963 has 53 MA's), (Start: 6 @59981 has 2 MA's), (10, 60101), (11, 60125), (19, 60296), (21, 60305),

Gene: Kingsolomon\_92 Start: 60085, Stop: 60426, Start Num: 7

Candidate Starts for Kingsolomon\_92:

(3, 60004), (Start: 5 @60031 has 53 MA's), (Start: 7 @60085 has 18 MA's), (15, 60268), (27, 60373), (31, 60406),

Gene: KirDoubleO7\_92 Start: 59997, Stop: 60338, Start Num: 7

Candidate Starts for KirDoubleO7\_92:

(3, 59916), (Start: 5 @59943 has 53 MA's), (Start: 7 @59997 has 18 MA's), (15, 60180), (27, 60285), (31, 60318),

Gene: Kropertea\_93 Start: 59539, Stop: 59934, Start Num: 3

Candidate Starts for Kropertea\_93:

(3, 59539), (Start: 5 @59566 has 53 MA's), (Start: 6 @59584 has 2 MA's), (10, 59704), (11, 59728), (16, 59866), (18, 59884), (19, 59899), (21, 59908),

Gene: Krypton555\_96 Start: 60488, Stop: 60829, Start Num: 7

Candidate Starts for Krypton555\_96:

(3, 60407), (Start: 5 @60434 has 53 MA's), (Start: 7 @60488 has 18 MA's), (10, 60572), (15, 60671), (27, 60776), (31, 60809),

Gene: LeBron\_92 Start: 57350, Stop: 57712, Start Num: 5

Candidate Starts for LeBron\_92:

(Start: 5 @57350 has 53 MA's), (10, 57434), (11, 57458), (25, 57656), (28, 57662),

Gene: Lewan\_98 Start: 60221, Stop: 60619, Start Num: 6

Candidate Starts for Lewan\_98:

(1, 60134), (2, 60152), (4, 60191), (Start: 5 @60203 has 53 MA's), (Start: 6 @60221 has 2 MA's), (10, 60341), (11, 60365), (16, 60503), (29, 60575), (30, 60584),

Gene: LilDestine\_95 Start: 59874, Stop: 60290, Start Num: 5

Candidate Starts for LilDestine\_95:

(1, 59805), (2, 59823), (4, 59862), (Start: 5 @59874 has 53 MA's), (Start: 6 @59892 has 2 MA's), (10, 60012), (11, 60036), (16, 60174), (29, 60246), (30, 60255),

Gene: LiyuLake\_93 Start: 60070, Stop: 60411, Start Num: 7

Candidate Starts for LiyuLake\_93:

(3, 59989), (Start: 5 @60016 has 53 MA's), (Start: 7 @60070 has 18 MA's), (15, 60253), (27, 60358), (31, 60391),

Gene: Loadrie\_96 Start: 60365, Stop: 60781, Start Num: 5

Candidate Starts for Loadrie\_96:

(1, 60296), (2, 60314), (4, 60353), (Start: 5 @60365 has 53 MA's), (Start: 6 @60383 has 2 MA's), (10, 60503), (11, 60527), (16, 60665), (29, 60737), (30, 60746),

Gene: Lolly9\_93 Start: 60161, Stop: 60502, Start Num: 7

Candidate Starts for Lolly9\_93:

(3, 60080), (Start: 5 @60107 has 53 MA's), (Start: 7 @60161 has 18 MA's), (15, 60344), (27, 60449), (31, 60482),

Gene: Lumos\_94 Start: 59973, Stop: 60314, Start Num: 7

Candidate Starts for Lumos\_94:

(3, 59892), (Start: 5 @59919 has 53 MA's), (Start: 7 @59973 has 18 MA's), (10, 60057), (15, 60156), (27, 60261), (31, 60294),

Gene: Lynnae\_98 Start: 59975, Stop: 60391, Start Num: 5

Candidate Starts for Lynnae\_98:

(1, 59906), (2, 59924), (4, 59963), (Start: 5 @59975 has 53 MA's), (Start: 6 @59993 has 2 MA's), (10, 60113), (11, 60137), (16, 60275), (29, 60347), (30, 60356),

Gene: MAckerman\_91 Start: 57036, Stop: 57398, Start Num: 5

Candidate Starts for MAckerman\_91:

(Start: 5 @57036 has 53 MA's), (10, 57120), (11, 57144), (25, 57342), (28, 57348),

Gene: Miley16\_97 Start: 60567, Stop: 60983, Start Num: 5

Candidate Starts for Miley16\_97:

(1, 60498), (2, 60516), (4, 60555), (Start: 5 @60567 has 53 MA's), (Start: 6 @60585 has 2 MA's), (10, 60705), (11, 60729), (16, 60867), (29, 60939), (30, 60948),

Gene: MiniLon\_98 Start: 60162, Stop: 60503, Start Num: 7

Candidate Starts for MiniLon\_98:

(3, 60081), (Start: 5 @60108 has 53 MA's), (Start: 7 @60162 has 18 MA's), (15, 60345), (27, 60450), (31, 60483),

Gene: MiniMac\_98 Start: 60157, Stop: 60498, Start Num: 7

Candidate Starts for MiniMac\_98:

(3, 60076), (Start: 5 @60103 has 53 MA's), (Start: 7 @60157 has 18 MA's), (15, 60340), (27, 60445), (31, 60478),

Gene: MkaliMitinis3\_99 Start: 60329, Stop: 60745, Start Num: 5

Candidate Starts for MkaliMitinis3\_99:

(1, 60260), (2, 60278), (4, 60317), (Start: 5 @60329 has 53 MA's), (Start: 6 @60347 has 2 MA's), (10, 60467), (11, 60491), (16, 60629), (29, 60701), (30, 60710),

Gene: Moostard\_91 Start: 60080, Stop: 60421, Start Num: 7

Candidate Starts for Moostard\_91:

(3, 59999), (Start: 5 @60026 has 53 MA's), (Start: 7 @60080 has 18 MA's), (10, 60164), (15, 60263), (27, 60368), (31, 60401),

Gene: MsGreen\_94 Start: 59975, Stop: 60316, Start Num: 7

Candidate Starts for MsGreen\_94:

(3, 59894), (Start: 5 @59921 has 53 MA's), (Start: 7 @59975 has 18 MA's), (10, 60059), (15, 60158), (27, 60263), (31, 60296),

Gene: Netyap\_96 Start: 60205, Stop: 60621, Start Num: 5

Candidate Starts for Netyap\_96:

(1, 60136), (2, 60154), (4, 60193), (Start: 5 @60205 has 53 MA's), (Start: 6 @60223 has 2 MA's), (10, 60343), (11, 60367), (16, 60505), (29, 60577), (30, 60586),

Gene: Nicholas\_92 Start: 60085, Stop: 60426, Start Num: 7

Candidate Starts for Nicholas\_92:

(3, 60004), (Start: 5 @60031 has 53 MA's), (Start: 7 @60085 has 18 MA's), (15, 60268), (27, 60373), (31, 60406),

Gene: Nicholasp3\_97 Start: 60045, Stop: 60413, Start Num: 5

Candidate Starts for Nicholasp3\_97:

(1, 59976), (2, 59994), (4, 60033), (Start: 5 @60045 has 53 MA's), (Start: 6 @60063 has 2 MA's), (10, 60183), (11, 60207), (19, 60378), (21, 60387),

Gene: OhShagHennessy\_89 Start: 57293, Stop: 57655, Start Num: 5

Candidate Starts for OhShagHennessy\_89:

(Start: 5 @57293 has 53 MA's), (10, 57377), (13, 57428), (22, 57590),

Gene: OverPar\_99 Start: 60365, Stop: 60781, Start Num: 5

Candidate Starts for OverPar\_99:

(1, 60296), (2, 60314), (4, 60353), (Start: 5 @60365 has 53 MA's), (Start: 6 @60383 has 2 MA's), (10, 60503), (11, 60527), (16, 60665), (29, 60737), (30, 60746),

Gene: PYPDinur\_98 Start: 60524, Stop: 60838, Start Num: 5

Candidate Starts for PYPDinur\_98:

(3, 60497), (Start: 5 @60524 has 53 MA's), (10, 60608), (11, 60632), (18, 60788), (19, 60803), (21, 60812), (24, 60830),

Gene: Poochiewood\_91 Start: 58690, Stop: 59052, Start Num: 5

Candidate Starts for Poochiewood\_91:

(Start: 5 @58690 has 53 MA's), (10, 58774), (11, 58798), (13, 58825), (22, 58987),

Gene: Quby\_98 Start: 59936, Stop: 60250, Start Num: 5

Candidate Starts for Quby\_98:

(3, 59909), (Start: 5 @59936 has 53 MA's), (10, 60020), (11, 60044), (18, 60200), (19, 60215), (21, 60224), (24, 60242),

Gene: Red305\_95 Start: 59976, Stop: 60317, Start Num: 7

Candidate Starts for Red305\_95:

(3, 59895), (Start: 5 @59922 has 53 MA's), (Start: 7 @59976 has 18 MA's), (10, 60060), (15, 60159), (27, 60264), (31, 60297),

Gene: Rose5\_94 Start: 58560, Stop: 58922, Start Num: 5

Candidate Starts for Rose5\_94:

(Start: 5 @58560 has 53 MA's), (10, 58644), (11, 58668), (25, 58866), (28, 58872),

Gene: Rossetti\_97 Start: 60365, Stop: 60781, Start Num: 5

Candidate Starts for Rossetti\_97:

(2, 60314), (4, 60353), (Start: 5 @60365 has 53 MA's), (Start: 6 @60383 has 2 MA's), (10, 60503), (11, 60527), (29, 60737), (30, 60746),

Gene: Rumpelstiltskin\_93 Start: 59856, Stop: 60206, Start Num: 6

Candidate Starts for Rumpelstiltskin\_93:

(1, 59769), (2, 59787), (4, 59826), (Start: 5 @59838 has 53 MA's), (Start: 6 @59856 has 2 MA's), (10, 59976), (11, 60000), (19, 60171), (21, 60180),

Gene: Samty\_93 Start: 60073, Stop: 60414, Start Num: 7

Candidate Starts for Samty\_93:

(3, 59992), (Start: 5 @60019 has 53 MA's), (Start: 7 @60073 has 18 MA's), (10, 60157), (15, 60256), (27, 60361), (31, 60394),

Gene: Sarshaun\_98 Start: 60956, Stop: 61372, Start Num: 5

Candidate Starts for Sarshaun\_98:

(1, 60887), (2, 60905), (4, 60944), (Start: 5 @60956 has 53 MA's), (Start: 6 @60974 has 2 MA's), (10, 61094), (11, 61118), (16, 61256), (29, 61328), (30, 61337),

Gene: Sheng711\_99 Start: 59973, Stop: 60362, Start Num: 3

Candidate Starts for Sheng711\_99:

(3, 59973), (Start: 5 @60000 has 53 MA's), (10, 60084), (11, 60108), (23, 60300), (29, 60318), (30, 60327),

Gene: Silverleaf\_92 Start: 58056, Stop: 58418, Start Num: 5

Candidate Starts for Silverleaf\_92:

(Start: 5 @58056 has 53 MA's), (10, 58140), (11, 58164), (25, 58362), (28, 58368),

Gene: Snenia\_93 Start: 59977, Stop: 60318, Start Num: 7

Candidate Starts for Snenia\_93:

(3, 59896), (Start: 5 @59923 has 53 MA's), (Start: 7 @59977 has 18 MA's), (10, 60061), (15, 60160), (27, 60265), (31, 60298),

Gene: SoJulia\_99 Start: 61721, Stop: 62137, Start Num: 5

Candidate Starts for SoJulia\_99:

(1, 61652), (2, 61670), (4, 61709), (Start: 5 @61721 has 53 MA's), (Start: 6 @61739 has 2 MA's), (10, 61859), (11, 61883), (16, 62021), (29, 62093), (30, 62102),

Gene: Soap141\_97 Start: 60956, Stop: 61372, Start Num: 5

Candidate Starts for Soap141\_97:

(1, 60887), (2, 60905), (4, 60944), (Start: 5 @60956 has 53 MA's), (Start: 6 @60974 has 2 MA's), (10, 61094), (11, 61118), (16, 61256), (29, 61328), (30, 61337),

Gene: Tourach\_97 Start: 60937, Stop: 61290, Start Num: 5

Candidate Starts for Tourach\_97:

(Start: 5 @60937 has 53 MA's), (10, 61021), (11, 61045), (20, 61219), (26, 61246),

Gene: TriFive\_95 Start: 60035, Stop: 60430, Start Num: 5

Candidate Starts for TriFive\_95:

(3, 60008), (Start: 5 @60035 has 53 MA's), (Start: 7 @60089 has 18 MA's), (10, 60173), (15, 60272), (27, 60377), (31, 60410),

Gene: Tyson\_94 Start: 58453, Stop: 58815, Start Num: 5

Candidate Starts for Tyson\_94:

(Start: 5 @58453 has 53 MA's), (10, 58537), (11, 58561), (25, 58759), (28, 58765),

Gene: UPIE\_92 Start: 58049, Stop: 58411, Start Num: 5

Candidate Starts for UPIE\_92:

(Start: 5 @58049 has 53 MA's), (10, 58133), (11, 58157), (25, 58355), (28, 58361), (32, 58400),

Gene: Underpass\_89 Start: 55081, Stop: 55449, Start Num: 5

Candidate Starts for Underpass\_89:

(1, 55012), (2, 55030), (4, 55069), (Start: 5 @55081 has 53 MA's), (Start: 6 @55099 has 2 MA's), (10, 55219), (11, 55243), (19, 55414), (21, 55423),

Gene: Vetrix\_95 Start: 59819, Stop: 60235, Start Num: 5

Candidate Starts for Vetrix\_95:

(1, 59750), (2, 59768), (4, 59807), (Start: 5 @59819 has 53 MA's), (Start: 6 @59837 has 2 MA's), (10, 59957), (11, 59981), (16, 60119), (29, 60191), (30, 60200),

Gene: Wamburgexpress\_92 Start: 58177, Stop: 58539, Start Num: 5

Candidate Starts for Wamburgexpress\_92:

(Start: 5 @58177 has 53 MA's), (10, 58261), (11, 58285), (25, 58483), (28, 58489),

Gene: Whirlwind\_95 Start: 60316, Stop: 60657, Start Num: 7

Candidate Starts for Whirlwind\_95:

(3, 60235), (Start: 5 @60262 has 53 MA's), (Start: 7 @60316 has 18 MA's), (10, 60400), (15, 60499), (27, 60604), (31, 60637),

Gene: Wigglewobble\_97 Start: 60127, Stop: 60543, Start Num: 5

Candidate Starts for Wigglewobble\_97:

(1, 60058), (2, 60076), (4, 60115), (Start: 5 @60127 has 53 MA's), (Start: 6 @60145 has 2 MA's), (10, 60265), (11, 60289), (16, 60427), (29, 60499), (30, 60508),

Gene: Wilder\_98 Start: 59963, Stop: 60379, Start Num: 5

Candidate Starts for Wilder\_98:

(1, 59894), (2, 59912), (4, 59951), (Start: 5 @59963 has 53 MA's), (Start: 6 @59981 has 2 MA's), (10, 60101), (11, 60125), (16, 60263), (29, 60335), (30, 60344),

Gene: Winky\_97 Start: 60567, Stop: 60983, Start Num: 5

Candidate Starts for Winky\_97:

(1, 60498), (2, 60516), (4, 60555), (Start: 5 @60567 has 53 MA's), (Start: 6 @60585 has 2 MA's), (10, 60705), (11, 60729), (16, 60867), (29, 60939), (30, 60948),

Gene: Wyatt2\_94 Start: 58484, Stop: 58846, Start Num: 5

Candidate Starts for Wyatt2\_94:

(Start: 5 @58484 has 53 MA's), (10, 58568), (11, 58592), (25, 58790), (28, 58796),

Gene: Zakai\_98 Start: 60606, Stop: 61022, Start Num: 5

Candidate Starts for Zakai\_98:

(1, 60537), (2, 60555), (4, 60594), (Start: 5 @60606 has 53 MA's), (Start: 6 @60624 has 2 MA's), (10, 60744), (11, 60768), (16, 60906), (29, 60978), (30, 60987),

Gene: Zaria\_93 Start: 57592, Stop: 57954, Start Num: 5

Candidate Starts for Zaria\_93:

(Start: 5 @57592 has 53 MA's), (10, 57676), (11, 57700), (25, 57898), (28, 57904),

Gene: ZhongYanYuan\_94 Start: 60018, Stop: 60434, Start Num: 5

Candidate Starts for ZhongYanYuan\_94:

(1, 59949), (2, 59967), (4, 60006), (Start: 5 @60018 has 53 MA's), (Start: 6 @60036 has 2 MA's), (10, 60156), (11, 60180), (29, 60390), (30, 60399),