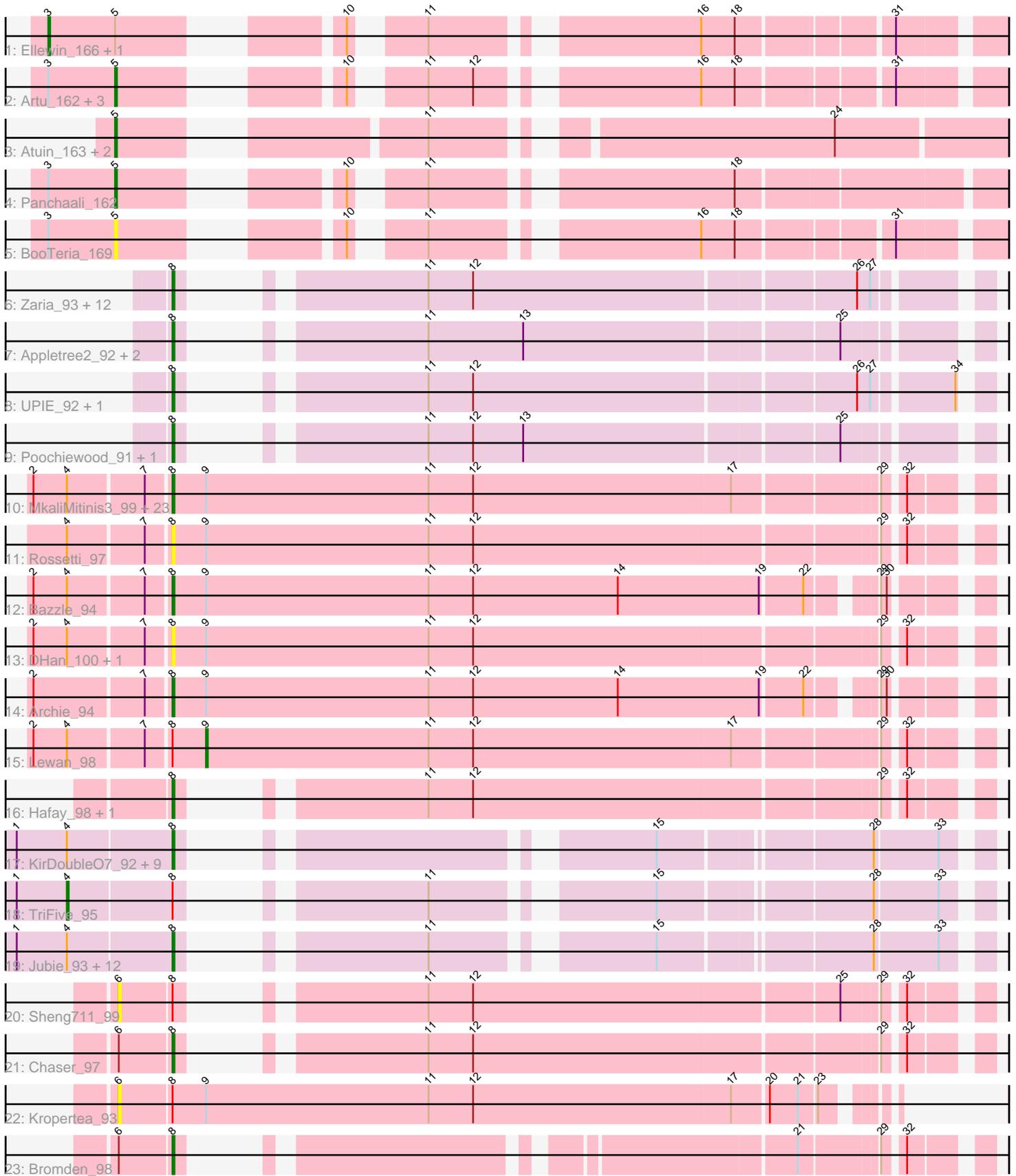


Pham 291043



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 291043 Report

This analysis was run 03/28/26 on database version 641.

Pham number 291043 has 91 members, 24 are drafts.

Phages represented in each track:

- Track 1 : Ellewin\_166, WaddleDee\_156
- Track 2 : Artu\_162, KSunshine22\_165, Emmetator\_163, DunneganBoMo\_160
- Track 3 : Atuin\_163, LeoJr\_172, ReginaGlobina\_176
- Track 4 : Panchaali\_162
- Track 5 : BooTeria\_169
- Track 6 : Zaria\_93, AvadaKedavra\_93, Wyatt2\_94, Tyson\_94, Silverleaf\_92, LeBron\_92, Rose5\_94, Acquire49\_93, Halena\_90, MAckerman\_91, Enceladus\_90, Calm\_94, Wamburgrxpress\_92
- Track 7 : Appletree2\_92, JoeDirt\_94, OhShagHennessy\_89
- Track 8 : UPIE\_92, CicholasNage\_90
- Track 9 : Poochiewood\_91, DirkDirk\_90
- Track 10 : 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 11 : Rossetti\_97
- Track 12 : Bazzle\_94
- Track 13 : DHan\_100, ZhongYanYuan\_94
- Track 14 : Archie\_94
- Track 15 : Lewan\_98
- Track 16 : Hafay\_98, Claus\_96
- 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 : Sheng711\_99
- Track 21 : Chaser\_97
- Track 22 : Kropertea\_93
- Track 23 : Bromden\_98

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

The start number called the most often in the published annotations is 8, it was called in 61 of the 67 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Acquire49\_93, Appletree2\_92, Archie\_94, AvadaKedavra\_93, Bazzle\_94, Bellis\_94, BigCheese\_97, BobsGarage\_96, BourbonZero\_95, Breezona\_97, Bromden\_98, Calm\_94, Chaser\_97, CicholasNage\_90, Claus\_96, Clautastrophe\_92, Crossroads\_97, DHan\_100, DirkDirk\_90, DrSeegs\_96, DuncansLeg\_94, Ellson\_93, Enceladus\_90, Faith1\_97, Finnry\_94, Gabriela\_97, GuuelaD\_94, Hafay\_98, Halena\_90, Itos\_97, Jobypre\_94, JoeDirt\_94, Jubie\_93, Kingsolomon\_92, KirDoubleO7\_92, Krypton555\_96, LeBron\_92, LilDestine\_95, LiyuLake\_93, Loadrie\_96, Lolly9\_93, Lumos\_94, Lynnae\_98, MAckerman\_91, Miley16\_97, MiniLon\_98, MiniMac\_98, MkaliMitinis3\_99, Moostard\_91, MsGreen\_94, Netyap\_96, Nicholas\_92, OhShagHennessy\_89, OverPar\_99, Poochiewood\_91, Red305\_95, Rose5\_94, Rossetti\_97, Samty\_93, Sarshaun\_98, Silverleaf\_92, Snenia\_93, SoJulia\_99, Soap141\_97, Tyson\_94, UPIE\_92, Vetrix\_95, Wamburggrxpress\_92, Whirlwind\_95, 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:

- Kropertea\_93, Lewan\_98, Sheng711\_99, TriFive\_95,

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

- Artu\_162, Atuin\_163, BooTeria\_169, DunneganBoMo\_160, Ellewin\_166, Emmetator\_163, KSunshine22\_165, LeoJr\_172, Panchaali\_162, ReginaGlobina\_176, WaddleDee\_156,

### Summary by start number:

Start 3:

- Found in 8 of 91 ( 8.8% ) of genes in pham
- Manual Annotations of this start: 1 of 67
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Ellewin\_166 (FC), WaddleDee\_156 (FC),

Start 4:

- Found in 53 of 91 ( 58.2% ) of genes in pham
- Manual Annotations of this start: 1 of 67
- Called 1.9% of time when present
- Phage (with cluster) where this start called: TriFive\_95 (L3),

Start 5:

- Found in 11 of 91 ( 12.1% ) of genes in pham
- Manual Annotations of this start: 3 of 67
- Called 81.8% of time when present
- Phage (with cluster) where this start called: Artu\_162 (FC), Atuin\_163 (FC), BooTeria\_169 (FC), DunneganBoMo\_160 (FC), Emmetator\_163 (FC), KSunshine22\_165 (FC), LeoJr\_172 (FC), Panchaali\_162 (FC), ReginaGlobina\_176 (FC),

Start 6:

- Found in 4 of 91 ( 4.4% ) of genes in pham
- No Manual Annotations of this start.
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Kropertea\_93 (L4), Sheng711\_99 (L4),

#### Start 8:

- Found in 80 of 91 ( 87.9% ) of genes in pham
- Manual Annotations of this start: 61 of 67
- Called 95.0% of time when present
- Phage (with cluster) where this start called: Acquire49\_93 (L1), Appletree2\_92 (L1), Archie\_94 (L2), AvadaKedavra\_93 (L1), Bazzle\_94 (L2), Bellis\_94 (L3), BigCheese\_97 (L2), BobsGarage\_96 (L2), BourbonZero\_95 (L3), Breezona\_97 (L2), Bromden\_98 (L4), Calm\_94 (L1), Chaser\_97 (L4), CicholasNage\_90 (L1), Claus\_96 (L2), Clautastrophe\_92 (L3), Crossroads\_97 (L2), DHan\_100 (L2), DirkDirk\_90 (L1), DrSeegs\_96 (L2), DuncansLeg\_94 (L3), Ellson\_93 (L3), Enceladus\_90 (L1), Faith1\_97 (L2), Finnry\_94 (L3), Gabriela\_97 (L2), GuuelaD\_94 (L2), Hafay\_98 (L2), Halena\_90 (L1), Itos\_97 (L2), Jobypre\_94 (L3), JoeDirt\_94 (L1), Jubie\_93 (L3), Kingsolomon\_92 (L3), KirDoubleO7\_92 (L3), Krypton555\_96 (L3), LeBron\_92 (L1), LilDestine\_95 (L2), LiyuLake\_93 (L3), Loadrie\_96 (L2), Lolly9\_93 (L3), Lumos\_94 (L3), Lynnae\_98 (L2), MAckerman\_91 (L1), Miley16\_97 (L2), MiniLon\_98 (L3), MiniMac\_98 (L3), MkaliMitinis3\_99 (L2), Moostard\_91 (L3), MsGreen\_94 (L3), Netyap\_96 (L2), Nicholas\_92 (L3), OhShagHennessy\_89 (L1), OverPar\_99 (L2), Poochiewood\_91 (L1), Red305\_95 (L3), Rose5\_94 (L1), Rossetti\_97 (L2), Samty\_93 (L3), Sarshaun\_98 (L2), Silverleaf\_92 (L1), Snenia\_93 (L3), SoJulia\_99 (L2), Soap141\_97 (L2), Tyson\_94 (L1), UPIE\_92 (L1), Vetrix\_95 (L2), Wamburgxpress\_92 (L1), Whirlwind\_95 (L3), Wigglewobble\_97 (L2), Wilder\_98 (L2), Winky\_97 (L2), Wyatt2\_94 (L1), Zakai\_98 (L2), Zaria\_93 (L1), ZhongYanYuan\_94 (L2),

#### Start 9:

- Found in 31 of 91 ( 34.1% ) of genes in pham
- Manual Annotations of this start: 1 of 67
- Called 3.2% of time when present
- Phage (with cluster) where this start called: Lewan\_98 (L2),

### Summary by clusters:

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

#### Info for manual annotations of cluster FC:

- Start number 3 was manually annotated 1 time for cluster FC.
- Start number 5 was manually annotated 3 times for cluster FC.

#### Info for manual annotations of cluster L1:

- Start number 8 was manually annotated 19 times for cluster L1.

#### Info for manual annotations of cluster L2:

- Start number 8 was manually annotated 22 times for cluster L2.
- Start number 9 was manually annotated 1 time for cluster L2.

#### Info for manual annotations of cluster L3:

- Start number 4 was manually annotated 1 time for cluster L3.
- Start number 8 was manually annotated 18 times for cluster L3.

Info for manual annotations of cluster L4:

•Start number 8 was manually annotated 2 times for cluster L4.

**Gene Information:**

Gene: Acquire49\_93 Start: 58116, Stop: 58478, Start Num: 8

Candidate Starts for Acquire49\_93:

(Start: 8 @58116 has 61 MA's), (11, 58200), (12, 58224), (26, 58422), (27, 58428),

Gene: Appletree2\_92 Start: 57876, Stop: 58238, Start Num: 8

Candidate Starts for Appletree2\_92:

(Start: 8 @57876 has 61 MA's), (11, 57960), (13, 58011), (25, 58173),

Gene: Archie\_94 Start: 59796, Stop: 60203, Start Num: 8

Candidate Starts for Archie\_94:

(2, 59727), (7, 59784), (Start: 8 @59796 has 61 MA's), (Start: 9 @59814 has 1 MA's), (11, 59934), (12, 59958), (14, 60036), (19, 60111), (22, 60132), (29, 60159), (30, 60162),

Gene: Artu\_162 Start: 110968, Stop: 111345, Start Num: 5

Candidate Starts for Artu\_162:

(Start: 3 @110932 has 1 MA's), (Start: 5 @110968 has 3 MA's), (10, 111052), (11, 111079), (12, 111103), (16, 111202), (18, 111220), (31, 111295),

Gene: Atuin\_163 Start: 113494, Stop: 113901, Start Num: 5

Candidate Starts for Atuin\_163:

(Start: 5 @113494 has 3 MA's), (11, 113623), (24, 113812),

Gene: AvadaKedavra\_93 Start: 58228, Stop: 58590, Start Num: 8

Candidate Starts for AvadaKedavra\_93:

(Start: 8 @58228 has 61 MA's), (11, 58312), (12, 58336), (26, 58534), (27, 58540),

Gene: Bazzle\_94 Start: 60352, Stop: 60759, Start Num: 8

Candidate Starts for Bazzle\_94:

(2, 60283), (Start: 4 @60301 has 1 MA's), (7, 60340), (Start: 8 @60352 has 61 MA's), (Start: 9 @60370 has 1 MA's), (11, 60490), (12, 60514), (14, 60592), (19, 60667), (22, 60688), (29, 60715), (30, 60718),

Gene: Bellis\_94 Start: 59981, Stop: 60322, Start Num: 8

Candidate Starts for Bellis\_94:

(1, 59900), (Start: 4 @59927 has 1 MA's), (Start: 8 @59981 has 61 MA's), (11, 60065), (15, 60164), (28, 60269), (33, 60302),

Gene: BigCheese\_97 Start: 60561, Stop: 60977, Start Num: 8

Candidate Starts for BigCheese\_97:

(2, 60492), (Start: 4 @60510 has 1 MA's), (7, 60549), (Start: 8 @60561 has 61 MA's), (Start: 9 @60579 has 1 MA's), (11, 60699), (12, 60723), (17, 60861), (29, 60933), (32, 60942),

Gene: BobsGarage\_96 Start: 60561, Stop: 60977, Start Num: 8

Candidate Starts for BobsGarage\_96:

(2, 60492), (Start: 4 @60510 has 1 MA's), (7, 60549), (Start: 8 @60561 has 61 MA's), (Start: 9 @60579 has 1 MA's), (11, 60699), (12, 60723), (17, 60861), (29, 60933), (32, 60942),

Gene: BooTeria\_169 Start: 111135, Stop: 111512, Start Num: 5

Candidate Starts for BooTeria\_169:

(Start: 3 @111099 has 1 MA's), (Start: 5 @111135 has 3 MA's), (10, 111219), (11, 111246), (16, 111369), (18, 111387), (31, 111462),

Gene: BourbonZero\_95 Start: 60007, Stop: 60348, Start Num: 8

Candidate Starts for BourbonZero\_95:

(1, 59926), (Start: 4 @59953 has 1 MA's), (Start: 8 @60007 has 61 MA's), (15, 60190), (28, 60295), (33, 60328),

Gene: Breezona\_97 Start: 60567, Stop: 60983, Start Num: 8

Candidate Starts for Breezona\_97:

(2, 60498), (Start: 4 @60516 has 1 MA's), (7, 60555), (Start: 8 @60567 has 61 MA's), (Start: 9 @60585 has 1 MA's), (11, 60705), (12, 60729), (17, 60867), (29, 60939), (32, 60948),

Gene: Bromden\_98 Start: 61150, Stop: 61488, Start Num: 8

Candidate Starts for Bromden\_98:

(6, 61123), (Start: 8 @61150 has 61 MA's), (21, 61405), (29, 61444), (32, 61453),

Gene: Calm\_94 Start: 58127, Stop: 58489, Start Num: 8

Candidate Starts for Calm\_94:

(Start: 8 @58127 has 61 MA's), (11, 58211), (12, 58235), (26, 58433), (27, 58439),

Gene: Chaser\_97 Start: 59573, Stop: 59935, Start Num: 8

Candidate Starts for Chaser\_97:

(6, 59546), (Start: 8 @59573 has 61 MA's), (11, 59657), (12, 59681), (29, 59891), (32, 59900),

Gene: CicholasNage\_90 Start: 57780, Stop: 58142, Start Num: 8

Candidate Starts for CicholasNage\_90:

(Start: 8 @57780 has 61 MA's), (11, 57864), (12, 57888), (26, 58086), (27, 58092), (34, 58131),

Gene: Claus\_96 Start: 60276, Stop: 60638, Start Num: 8

Candidate Starts for Claus\_96:

(Start: 8 @60276 has 61 MA's), (11, 60360), (12, 60384), (29, 60594), (32, 60603),

Gene: Clautastrophe\_92 Start: 59976, Stop: 60317, Start Num: 8

Candidate Starts for Clautastrophe\_92:

(1, 59895), (Start: 4 @59922 has 1 MA's), (Start: 8 @59976 has 61 MA's), (11, 60060), (15, 60159), (28, 60264), (33, 60297),

Gene: Crossroads\_97 Start: 60279, Stop: 60695, Start Num: 8

Candidate Starts for Crossroads\_97:

(2, 60210), (Start: 4 @60228 has 1 MA's), (7, 60267), (Start: 8 @60279 has 61 MA's), (Start: 9 @60297 has 1 MA's), (11, 60417), (12, 60441), (17, 60579), (29, 60651), (32, 60660),

Gene: DHan\_100 Start: 60498, Stop: 60914, Start Num: 8

Candidate Starts for DHan\_100:

(2, 60429), (Start: 4 @60447 has 1 MA's), (7, 60486), (Start: 8 @60498 has 61 MA's), (Start: 9 @60516 has 1 MA's), (11, 60636), (12, 60660), (29, 60870), (32, 60879),

Gene: DirkDirk\_90 Start: 57456, Stop: 57818, Start Num: 8

Candidate Starts for DirkDirk\_90:

(Start: 8 @57456 has 61 MA's), (11, 57540), (12, 57564), (13, 57591), (25, 57753),

Gene: DrSeegs\_96 Start: 60567, Stop: 60983, Start Num: 8

Candidate Starts for DrSeegs\_96:

(2, 60498), (Start: 4 @60516 has 1 MA's), (7, 60555), (Start: 8 @60567 has 61 MA's), (Start: 9 @60585 has 1 MA's), (11, 60705), (12, 60729), (17, 60867), (29, 60939), (32, 60948),

Gene: DuncansLeg\_94 Start: 59995, Stop: 60336, Start Num: 8

Candidate Starts for DuncansLeg\_94:

(1, 59914), (Start: 4 @59941 has 1 MA's), (Start: 8 @59995 has 61 MA's), (15, 60178), (28, 60283), (33, 60316),

Gene: DunneganBoMo\_160 Start: 110317, Stop: 110694, Start Num: 5

Candidate Starts for DunneganBoMo\_160:

(Start: 3 @110281 has 1 MA's), (Start: 5 @110317 has 3 MA's), (10, 110401), (11, 110428), (12, 110452), (16, 110551), (18, 110569), (31, 110644),

Gene: Ellewin\_166 Start: 110388, Stop: 110801, Start Num: 3

Candidate Starts for Ellewin\_166:

(Start: 3 @110388 has 1 MA's), (Start: 5 @110424 has 3 MA's), (10, 110508), (11, 110535), (16, 110658), (18, 110676), (31, 110751),

Gene: Ellson\_93 Start: 60310, Stop: 60651, Start Num: 8

Candidate Starts for Ellson\_93:

(1, 60229), (Start: 4 @60256 has 1 MA's), (Start: 8 @60310 has 61 MA's), (15, 60493), (28, 60598), (33, 60631),

Gene: Emmetator\_163 Start: 110633, Stop: 111010, Start Num: 5

Candidate Starts for Emmetator\_163:

(Start: 3 @110597 has 1 MA's), (Start: 5 @110633 has 3 MA's), (10, 110717), (11, 110744), (12, 110768), (16, 110867), (18, 110885), (31, 110960),

Gene: Enceladus\_90 Start: 58157, Stop: 58519, Start Num: 8

Candidate Starts for Enceladus\_90:

(Start: 8 @58157 has 61 MA's), (11, 58241), (12, 58265), (26, 58463), (27, 58469),

Gene: Faith1\_97 Start: 60204, Stop: 60620, Start Num: 8

Candidate Starts for Faith1\_97:

(2, 60135), (Start: 4 @60153 has 1 MA's), (7, 60192), (Start: 8 @60204 has 61 MA's), (Start: 9 @60222 has 1 MA's), (11, 60342), (12, 60366), (17, 60504), (29, 60576), (32, 60585),

Gene: Finnry\_94 Start: 60329, Stop: 60670, Start Num: 8

Candidate Starts for Finnry\_94:

(1, 60248), (Start: 4 @60275 has 1 MA's), (Start: 8 @60329 has 61 MA's), (11, 60413), (15, 60512), (28, 60617), (33, 60650),

Gene: Gabriela\_97 Start: 59550, Stop: 59966, Start Num: 8

Candidate Starts for Gabriela\_97:

(2, 59481), (Start: 4 @59499 has 1 MA's), (7, 59538), (Start: 8 @59550 has 61 MA's), (Start: 9 @59568 has 1 MA's), (11, 59688), (12, 59712), (17, 59850), (29, 59922), (32, 59931),

Gene: GuuelaD\_94 Start: 60163, Stop: 60579, Start Num: 8

Candidate Starts for GuuelaD\_94:

(2, 60094), (Start: 4 @60112 has 1 MA's), (7, 60151), (Start: 8 @60163 has 61 MA's), (Start: 9 @60181 has 1 MA's), (11, 60301), (12, 60325), (17, 60463), (29, 60535), (32, 60544),

Gene: Hafay\_98 Start: 60271, Stop: 60633, Start Num: 8

Candidate Starts for Hafay\_98:

(Start: 8 @60271 has 61 MA's), (11, 60355), (12, 60379), (29, 60589), (32, 60598),

Gene: Halena\_90 Start: 57043, Stop: 57405, Start Num: 8

Candidate Starts for Halena\_90:

(Start: 8 @57043 has 61 MA's), (11, 57127), (12, 57151), (26, 57349), (27, 57355),

Gene: Itos\_97 Start: 59110, Stop: 59526, Start Num: 8

Candidate Starts for Itos\_97:

(2, 59041), (Start: 4 @59059 has 1 MA's), (7, 59098), (Start: 8 @59110 has 61 MA's), (Start: 9 @59128 has 1 MA's), (11, 59248), (12, 59272), (17, 59410), (29, 59482), (32, 59491),

Gene: Jobypre\_94 Start: 59976, Stop: 60317, Start Num: 8

Candidate Starts for Jobypre\_94:

(1, 59895), (Start: 4 @59922 has 1 MA's), (Start: 8 @59976 has 61 MA's), (11, 60060), (15, 60159), (28, 60264), (33, 60297),

Gene: JoeDirt\_94 Start: 58718, Stop: 59080, Start Num: 8

Candidate Starts for JoeDirt\_94:

(Start: 8 @58718 has 61 MA's), (11, 58802), (13, 58853), (25, 59015),

Gene: Jubie\_93 Start: 60111, Stop: 60452, Start Num: 8

Candidate Starts for Jubie\_93:

(1, 60030), (Start: 4 @60057 has 1 MA's), (Start: 8 @60111 has 61 MA's), (11, 60195), (15, 60294), (28, 60399), (33, 60432),

Gene: KSunshine22\_165 Start: 111380, Stop: 111757, Start Num: 5

Candidate Starts for KSunshine22\_165:

(Start: 3 @111344 has 1 MA's), (Start: 5 @111380 has 3 MA's), (10, 111464), (11, 111491), (12, 111515), (16, 111614), (18, 111632), (31, 111707),

Gene: Kingsolomon\_92 Start: 60085, Stop: 60426, Start Num: 8

Candidate Starts for Kingsolomon\_92:

(1, 60004), (Start: 4 @60031 has 1 MA's), (Start: 8 @60085 has 61 MA's), (15, 60268), (28, 60373), (33, 60406),

Gene: KirDoubleO7\_92 Start: 59997, Stop: 60338, Start Num: 8

Candidate Starts for KirDoubleO7\_92:

(1, 59916), (Start: 4 @59943 has 1 MA's), (Start: 8 @59997 has 61 MA's), (15, 60180), (28, 60285), (33, 60318),

Gene: Kropertea\_93 Start: 59539, Stop: 59934, Start Num: 6

Candidate Starts for Kropertea\_93:

(6, 59539), (Start: 8 @59566 has 61 MA's), (Start: 9 @59584 has 1 MA's), (11, 59704), (12, 59728), (17, 59866), (20, 59884), (21, 59899), (23, 59908),

Gene: Krypton555\_96 Start: 60488, Stop: 60829, Start Num: 8

Candidate Starts for Krypton555\_96:

(1, 60407), (Start: 4 @60434 has 1 MA's), (Start: 8 @60488 has 61 MA's), (11, 60572), (15, 60671), (28, 60776), (33, 60809),

Gene: LeBron\_92 Start: 57350, Stop: 57712, Start Num: 8

Candidate Starts for LeBron\_92:

(Start: 8 @57350 has 61 MA's), (11, 57434), (12, 57458), (26, 57656), (27, 57662),

Gene: LeoJr\_172 Start: 114114, Stop: 114521, Start Num: 5

Candidate Starts for LeoJr\_172:

(Start: 5 @114114 has 3 MA's), (11, 114243), (24, 114432),

Gene: Lewan\_98 Start: 60221, Stop: 60619, Start Num: 9

Candidate Starts for Lewan\_98:

(2, 60134), (Start: 4 @60152 has 1 MA's), (7, 60191), (Start: 8 @60203 has 61 MA's), (Start: 9 @60221 has 1 MA's), (11, 60341), (12, 60365), (17, 60503), (29, 60575), (32, 60584),

Gene: LilDestine\_95 Start: 59874, Stop: 60290, Start Num: 8

Candidate Starts for LilDestine\_95:

(2, 59805), (Start: 4 @59823 has 1 MA's), (7, 59862), (Start: 8 @59874 has 61 MA's), (Start: 9 @59892 has 1 MA's), (11, 60012), (12, 60036), (17, 60174), (29, 60246), (32, 60255),

Gene: LiyuLake\_93 Start: 60070, Stop: 60411, Start Num: 8

Candidate Starts for LiyuLake\_93:

(1, 59989), (Start: 4 @60016 has 1 MA's), (Start: 8 @60070 has 61 MA's), (15, 60253), (28, 60358), (33, 60391),

Gene: Loadrie\_96 Start: 60365, Stop: 60781, Start Num: 8

Candidate Starts for Loadrie\_96:

(2, 60296), (Start: 4 @60314 has 1 MA's), (7, 60353), (Start: 8 @60365 has 61 MA's), (Start: 9 @60383 has 1 MA's), (11, 60503), (12, 60527), (17, 60665), (29, 60737), (32, 60746),

Gene: Lolly9\_93 Start: 60161, Stop: 60502, Start Num: 8

Candidate Starts for Lolly9\_93:

(1, 60080), (Start: 4 @60107 has 1 MA's), (Start: 8 @60161 has 61 MA's), (15, 60344), (28, 60449), (33, 60482),

Gene: Lumos\_94 Start: 59973, Stop: 60314, Start Num: 8

Candidate Starts for Lumos\_94:

(1, 59892), (Start: 4 @59919 has 1 MA's), (Start: 8 @59973 has 61 MA's), (11, 60057), (15, 60156), (28, 60261), (33, 60294),

Gene: Lynnae\_98 Start: 59975, Stop: 60391, Start Num: 8

Candidate Starts for Lynnae\_98:

(2, 59906), (Start: 4 @59924 has 1 MA's), (7, 59963), (Start: 8 @59975 has 61 MA's), (Start: 9 @59993 has 1 MA's), (11, 60113), (12, 60137), (17, 60275), (29, 60347), (32, 60356),

Gene: MAckerman\_91 Start: 57036, Stop: 57398, Start Num: 8

Candidate Starts for MAckerman\_91:

(Start: 8 @57036 has 61 MA's), (11, 57120), (12, 57144), (26, 57342), (27, 57348),

Gene: Miley16\_97 Start: 60567, Stop: 60983, Start Num: 8

Candidate Starts for Miley16\_97:

(2, 60498), (Start: 4 @60516 has 1 MA's), (7, 60555), (Start: 8 @60567 has 61 MA's), (Start: 9 @60585 has 1 MA's), (11, 60705), (12, 60729), (17, 60867), (29, 60939), (32, 60948),

Gene: MiniLon\_98 Start: 60162, Stop: 60503, Start Num: 8

Candidate Starts for MiniLon\_98:

(1, 60081), (Start: 4 @60108 has 1 MA's), (Start: 8 @60162 has 61 MA's), (15, 60345), (28, 60450), (33, 60483),

Gene: MiniMac\_98 Start: 60157, Stop: 60498, Start Num: 8

Candidate Starts for MiniMac\_98:

(1, 60076), (Start: 4 @60103 has 1 MA's), (Start: 8 @60157 has 61 MA's), (15, 60340), (28, 60445), (33, 60478),

Gene: MkaliMitinis3\_99 Start: 60329, Stop: 60745, Start Num: 8

Candidate Starts for MkaliMitinis3\_99:

(2, 60260), (Start: 4 @60278 has 1 MA's), (7, 60317), (Start: 8 @60329 has 61 MA's), (Start: 9 @60347 has 1 MA's), (11, 60467), (12, 60491), (17, 60629), (29, 60701), (32, 60710),

Gene: Moostard\_91 Start: 60080, Stop: 60421, Start Num: 8

Candidate Starts for Moostard\_91:

(1, 59999), (Start: 4 @60026 has 1 MA's), (Start: 8 @60080 has 61 MA's), (11, 60164), (15, 60263), (28, 60368), (33, 60401),

Gene: MsGreen\_94 Start: 59975, Stop: 60316, Start Num: 8

Candidate Starts for MsGreen\_94:

(1, 59894), (Start: 4 @59921 has 1 MA's), (Start: 8 @59975 has 61 MA's), (11, 60059), (15, 60158), (28, 60263), (33, 60296),

Gene: Netyap\_96 Start: 60205, Stop: 60621, Start Num: 8

Candidate Starts for Netyap\_96:

(2, 60136), (Start: 4 @60154 has 1 MA's), (7, 60193), (Start: 8 @60205 has 61 MA's), (Start: 9 @60223 has 1 MA's), (11, 60343), (12, 60367), (17, 60505), (29, 60577), (32, 60586),

Gene: Nicholas\_92 Start: 60085, Stop: 60426, Start Num: 8

Candidate Starts for Nicholas\_92:

(1, 60004), (Start: 4 @60031 has 1 MA's), (Start: 8 @60085 has 61 MA's), (15, 60268), (28, 60373), (33, 60406),

Gene: OhShagHennessy\_89 Start: 57293, Stop: 57655, Start Num: 8

Candidate Starts for OhShagHennessy\_89:

(Start: 8 @57293 has 61 MA's), (11, 57377), (13, 57428), (25, 57590),

Gene: OverPar\_99 Start: 60365, Stop: 60781, Start Num: 8

Candidate Starts for OverPar\_99:

(2, 60296), (Start: 4 @60314 has 1 MA's), (7, 60353), (Start: 8 @60365 has 61 MA's), (Start: 9 @60383 has 1 MA's), (11, 60503), (12, 60527), (17, 60665), (29, 60737), (32, 60746),

Gene: Panchaali\_162 Start: 111232, Stop: 111618, Start Num: 5

Candidate Starts for Panchaali\_162:

(Start: 3 @111196 has 1 MA's), (Start: 5 @111232 has 3 MA's), (10, 111316), (11, 111343), (18, 111484),

Gene: Pochiewood\_91 Start: 58690, Stop: 59052, Start Num: 8

Candidate Starts for Poochiewood\_91:

(Start: 8 @58690 has 61 MA's), (11, 58774), (12, 58798), (13, 58825), (25, 58987),

Gene: Red305\_95 Start: 59976, Stop: 60317, Start Num: 8

Candidate Starts for Red305\_95:

(1, 59895), (Start: 4 @59922 has 1 MA's), (Start: 8 @59976 has 61 MA's), (11, 60060), (15, 60159), (28, 60264), (33, 60297),

Gene: ReginaGlobina\_176 Start: 115387, Stop: 115794, Start Num: 5

Candidate Starts for ReginaGlobina\_176:

(Start: 5 @115387 has 3 MA's), (11, 115516), (24, 115705),

Gene: Rose5\_94 Start: 58560, Stop: 58922, Start Num: 8

Candidate Starts for Rose5\_94:

(Start: 8 @58560 has 61 MA's), (11, 58644), (12, 58668), (26, 58866), (27, 58872),

Gene: Rossetti\_97 Start: 60365, Stop: 60781, Start Num: 8

Candidate Starts for Rossetti\_97:

(Start: 4 @60314 has 1 MA's), (7, 60353), (Start: 8 @60365 has 61 MA's), (Start: 9 @60383 has 1 MA's), (11, 60503), (12, 60527), (29, 60737), (32, 60746),

Gene: Samty\_93 Start: 60073, Stop: 60414, Start Num: 8

Candidate Starts for Samty\_93:

(1, 59992), (Start: 4 @60019 has 1 MA's), (Start: 8 @60073 has 61 MA's), (11, 60157), (15, 60256), (28, 60361), (33, 60394),

Gene: Sarshaun\_98 Start: 60956, Stop: 61372, Start Num: 8

Candidate Starts for Sarshaun\_98:

(2, 60887), (Start: 4 @60905 has 1 MA's), (7, 60944), (Start: 8 @60956 has 61 MA's), (Start: 9 @60974 has 1 MA's), (11, 61094), (12, 61118), (17, 61256), (29, 61328), (32, 61337),

Gene: Sheng711\_99 Start: 59973, Stop: 60362, Start Num: 6

Candidate Starts for Sheng711\_99:

(6, 59973), (Start: 8 @60000 has 61 MA's), (11, 60084), (12, 60108), (25, 60300), (29, 60318), (32, 60327),

Gene: Silverleaf\_92 Start: 58056, Stop: 58418, Start Num: 8

Candidate Starts for Silverleaf\_92:

(Start: 8 @58056 has 61 MA's), (11, 58140), (12, 58164), (26, 58362), (27, 58368),

Gene: Snenia\_93 Start: 59977, Stop: 60318, Start Num: 8

Candidate Starts for Snenia\_93:

(1, 59896), (Start: 4 @59923 has 1 MA's), (Start: 8 @59977 has 61 MA's), (11, 60061), (15, 60160), (28, 60265), (33, 60298),

Gene: SoJulia\_99 Start: 61721, Stop: 62137, Start Num: 8

Candidate Starts for SoJulia\_99:

(2, 61652), (Start: 4 @61670 has 1 MA's), (7, 61709), (Start: 8 @61721 has 61 MA's), (Start: 9 @61739 has 1 MA's), (11, 61859), (12, 61883), (17, 62021), (29, 62093), (32, 62102),

Gene: Soap141\_97 Start: 60956, Stop: 61372, Start Num: 8

Candidate Starts for Soap141\_97:

(2, 60887), (Start: 4 @60905 has 1 MA's), (7, 60944), (Start: 8 @60956 has 61 MA's), (Start: 9 @60974 has 1 MA's), (11, 61094), (12, 61118), (17, 61256), (29, 61328), (32, 61337),

Gene: TriFive\_95 Start: 60035, Stop: 60430, Start Num: 4

Candidate Starts for TriFive\_95:

(1, 60008), (Start: 4 @60035 has 1 MA's), (Start: 8 @60089 has 61 MA's), (11, 60173), (15, 60272), (28, 60377), (33, 60410),

Gene: Tyson\_94 Start: 58453, Stop: 58815, Start Num: 8

Candidate Starts for Tyson\_94:

(Start: 8 @58453 has 61 MA's), (11, 58537), (12, 58561), (26, 58759), (27, 58765),

Gene: UPIE\_92 Start: 58049, Stop: 58411, Start Num: 8

Candidate Starts for UPIE\_92:

(Start: 8 @58049 has 61 MA's), (11, 58133), (12, 58157), (26, 58355), (27, 58361), (34, 58400),

Gene: Vetric\_95 Start: 59819, Stop: 60235, Start Num: 8

Candidate Starts for Vetric\_95:

(2, 59750), (Start: 4 @59768 has 1 MA's), (7, 59807), (Start: 8 @59819 has 61 MA's), (Start: 9 @59837 has 1 MA's), (11, 59957), (12, 59981), (17, 60119), (29, 60191), (32, 60200),

Gene: WaddleDee\_156 Start: 109554, Stop: 109967, Start Num: 3

Candidate Starts for WaddleDee\_156:

(Start: 3 @109554 has 1 MA's), (Start: 5 @109590 has 3 MA's), (10, 109674), (11, 109701), (16, 109824), (18, 109842), (31, 109917),

Gene: Wamburgxpress\_92 Start: 58177, Stop: 58539, Start Num: 8

Candidate Starts for Wamburgxpress\_92:

(Start: 8 @58177 has 61 MA's), (11, 58261), (12, 58285), (26, 58483), (27, 58489),

Gene: Whirlwind\_95 Start: 60316, Stop: 60657, Start Num: 8

Candidate Starts for Whirlwind\_95:

(1, 60235), (Start: 4 @60262 has 1 MA's), (Start: 8 @60316 has 61 MA's), (11, 60400), (15, 60499), (28, 60604), (33, 60637),

Gene: Wigglewigggle\_97 Start: 60127, Stop: 60543, Start Num: 8

Candidate Starts for Wigglewigggle\_97:

(2, 60058), (Start: 4 @60076 has 1 MA's), (7, 60115), (Start: 8 @60127 has 61 MA's), (Start: 9 @60145 has 1 MA's), (11, 60265), (12, 60289), (17, 60427), (29, 60499), (32, 60508),

Gene: Wilder\_98 Start: 59963, Stop: 60379, Start Num: 8

Candidate Starts for Wilder\_98:

(2, 59894), (Start: 4 @59912 has 1 MA's), (7, 59951), (Start: 8 @59963 has 61 MA's), (Start: 9 @59981 has 1 MA's), (11, 60101), (12, 60125), (17, 60263), (29, 60335), (32, 60344),

Gene: Winky\_97 Start: 60567, Stop: 60983, Start Num: 8

Candidate Starts for Winky\_97:

(2, 60498), (Start: 4 @60516 has 1 MA's), (7, 60555), (Start: 8 @60567 has 61 MA's), (Start: 9 @60585 has 1 MA's), (11, 60705), (12, 60729), (17, 60867), (29, 60939), (32, 60948),

Gene: Wyatt2\_94 Start: 58484, Stop: 58846, Start Num: 8

Candidate Starts for Wyatt2\_94:

(Start: 8 @58484 has 61 MA's), (11, 58568), (12, 58592), (26, 58790), (27, 58796),

Gene: Zakai\_98 Start: 60606, Stop: 61022, Start Num: 8

Candidate Starts for Zakai\_98:

(2, 60537), (Start: 4 @60555 has 1 MA's), (7, 60594), (Start: 8 @60606 has 61 MA's), (Start: 9 @60624 has 1 MA's), (11, 60744), (12, 60768), (17, 60906), (29, 60978), (32, 60987),

Gene: Zaria\_93 Start: 57592, Stop: 57954, Start Num: 8

Candidate Starts for Zaria\_93:

(Start: 8 @57592 has 61 MA's), (11, 57676), (12, 57700), (26, 57898), (27, 57904),

Gene: ZhongYanYuan\_94 Start: 60018, Stop: 60434, Start Num: 8

Candidate Starts for ZhongYanYuan\_94:

(2, 59949), (Start: 4 @59967 has 1 MA's), (7, 60006), (Start: 8 @60018 has 61 MA's), (Start: 9 @60036 has 1 MA's), (11, 60156), (12, 60180), (29, 60390), (32, 60399),