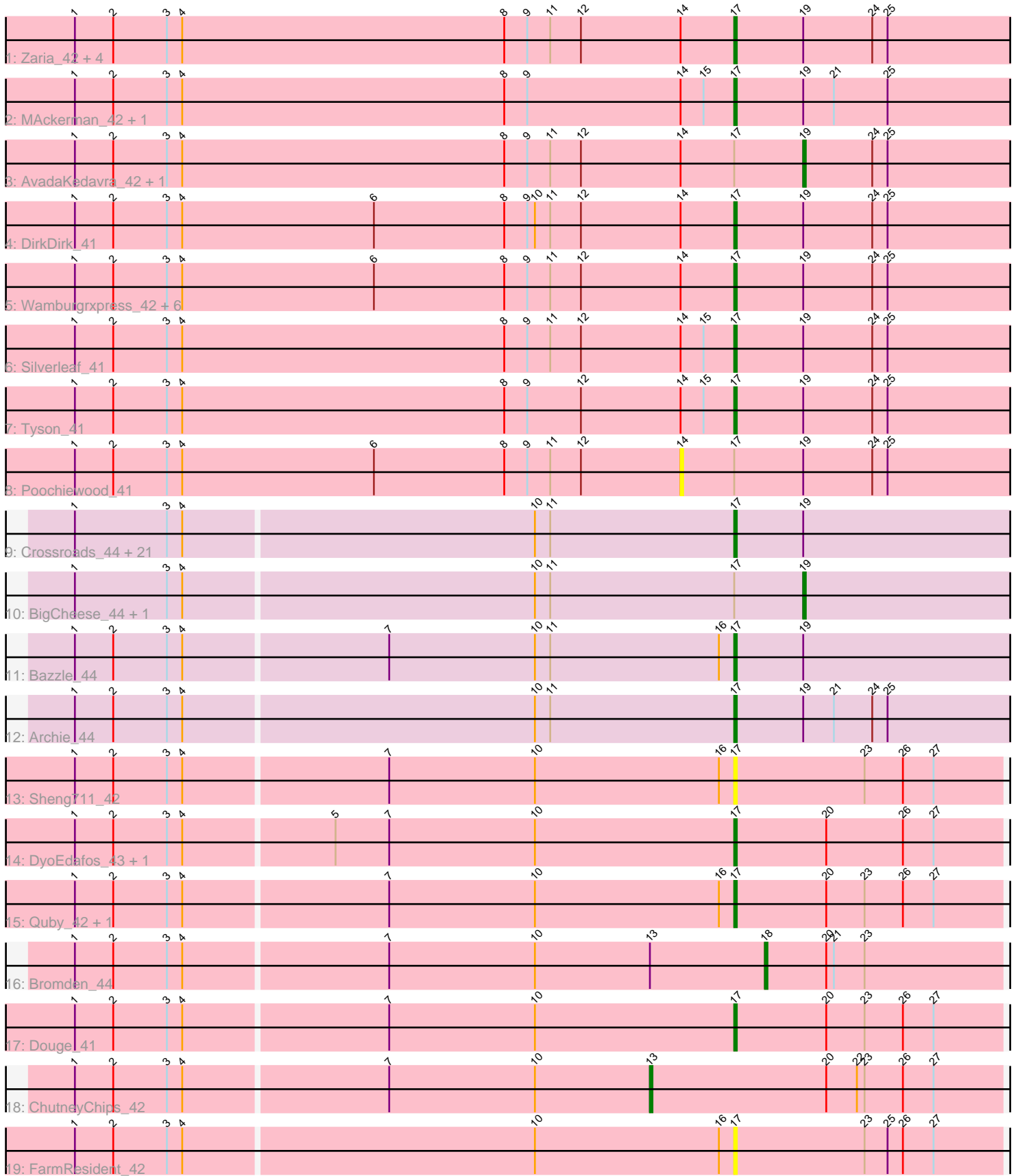


Pham 311654



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 311654 Report

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

Pham number 311654 has 55 members, 4 are drafts.

Phages represented in each track:

- Track 1 : Zaria\_42, Wyatt2\_42, Rose5\_41, Calm\_42, CicholasNage\_42
- Track 2 : MAckerman\_42, Halena\_41
- Track 3 : AvadaKedavra\_42, Acquire49\_42
- Track 4 : DirkDirk\_41
- Track 5 : Wamburgxpress\_42, OhShagHennessy\_41, JoeDirt\_41, Appletree2\_41, LeBron\_42, UPIE\_42, Enceladus\_41
- Track 6 : Silverleaf\_41
- Track 7 : Tyson\_41
- Track 8 : Poochiewood\_41
- Track 9 : Crossroads\_44, Vetrix\_44, Breezona\_44, Finemlucis\_44, BobsGarage\_44, Gardann\_44, Nicholasp3\_44, Wilder\_44, Lewan\_44, Miley16\_44, Gabriela\_44, Wigglewiggles\_44, OverPar\_44, Kahlid\_44, Underpass\_44, Zakai\_44, Rumpelstiltskin\_44, LilDestine\_44, Itos\_43, Winky\_44, DrSeegs\_44, Faith1\_44
- Track 10 : BigCheese\_44, Netyap\_44
- Track 11 : Bazzle\_44
- Track 12 : Archie\_44
- Track 13 : Sheng711\_42
- Track 14 : DyoEdafos\_43, Kropertea\_42
- Track 15 : Quby\_42, Chaser\_41
- Track 16 : Bromden\_44
- Track 17 : Douge\_41
- Track 18 : ChutneyChips\_42
- Track 19 : FarmResident\_42

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

The start number called the most often in the published annotations is 17, it was called in 45 of the 51 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Appletree2\_41, Archie\_44, Bazzle\_44, BobsGarage\_44, Breezona\_44, Calm\_42, Chaser\_41, CicholasNage\_42, Crossroads\_44, DirkDirk\_41, Douge\_41, DrSeegs\_44, DyoEdafos\_43, Enceladus\_41, Faith1\_44, FarmResident\_42, Finemlucis\_44, Gabriela\_44, Gardann\_44, Halena\_41, Itos\_43, JoeDirt\_41, Kahlid\_44,

Kropertea\_42, LeBron\_42, Lewan\_44, LilDestine\_44, MAckerman\_42, Miley16\_44, Nicholasp3\_44, OhShagHennessy\_41, OverPar\_44, Quby\_42, Rose5\_41, Rumpelstiltskin\_44, Sheng711\_42, Silverleaf\_41, Tyson\_41, UPIE\_42, Underpass\_44, Vetrix\_44, Wamburggrxpress\_42, Wigglewiggle\_44, Wilder\_44, Winky\_44, Wyatt2\_42, Zakai\_44, Zaria\_42,

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

- Acquire49\_42, AvadaKedavra\_42, BigCheese\_44, Netyap\_44, Poochiewood\_41,

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

- Bromden\_44, ChutneyChips\_42,

### Summary by start number:

Start 13:

- Found in 2 of 55 ( 3.6% ) of genes in pham
- Manual Annotations of this start: 1 of 51
- Called 50.0% of time when present
- Phage (with cluster) where this start called: ChutneyChips\_42 (L4),

Start 14:

- Found in 20 of 55 ( 36.4% ) of genes in pham
- No Manual Annotations of this start.
- Called 5.0% of time when present
- Phage (with cluster) where this start called: Poochiewood\_41 (L1),

Start 17:

- Found in 53 of 55 ( 96.4% ) of genes in pham
- Manual Annotations of this start: 45 of 51
- Called 90.6% of time when present
- Phage (with cluster) where this start called: Appletree2\_41 (L1), Archie\_44 (L2), Bazzle\_44 (L2), BobsGarage\_44 (L2), Breezona\_44 (L2), Calm\_42 (L1), Chaser\_41 (L4), CicholasNage\_42 (L1), Crossroads\_44 (L2), DirkDirk\_41 (L1), Douge\_41 (L4), DrSeegs\_44 (L2), DyoEdafos\_43 (L4), Enceladus\_41 (L1), Faith1\_44 (L2), FarmResident\_42 (L4), Finemlucis\_44 (L2), Gabriela\_44 (L2), Gardann\_44 (L2), Halena\_41 (L1), Itos\_43 (L2), JoeDirt\_41 (L1), Kahlid\_44 (L2), Kropertea\_42 (L4), LeBron\_42 (L1), Lewan\_44 (L2), LilDestine\_44 (L2), MAckerman\_42 (L1), Miley16\_44 (L2), Nicholasp3\_44 (L2), OhShagHennessy\_41 (L1), OverPar\_44 (L2), Quby\_42 (L4), Rose5\_41 (L1), Rumpelstiltskin\_44 (L2), Sheng711\_42 (L4), Silverleaf\_41 (L1), Tyson\_41 (L1), UPIE\_42 (L1), Underpass\_44 (L2), Vetrix\_44 (L2), Wamburggrxpress\_42 (L1), Wigglewiggle\_44 (L2), Wilder\_44 (L2), Winky\_44 (L2), Wyatt2\_42 (L1), Zakai\_44 (L2), Zaria\_42 (L1),

Start 18:

- Found in 1 of 55 ( 1.8% ) of genes in pham
- Manual Annotations of this start: 1 of 51
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bromden\_44 (L4),

Start 19:

- Found in 46 of 55 ( 83.6% ) of genes in pham
- Manual Annotations of this start: 4 of 51
- Called 8.7% of time when present

- Phage (with cluster) where this start called: Acquire49\_42 (L1), AvadaKedavra\_42 (L1), BigCheese\_44 (L2), Netyap\_44 (L2),

### **Summary by clusters:**

There are 3 clusters represented in this pham: L4, L2, L1,

Info for manual annotations of cluster L1:

- Start number 17 was manually annotated 17 times for cluster L1.
- Start number 19 was manually annotated 2 times for cluster L1.

Info for manual annotations of cluster L2:

- Start number 17 was manually annotated 24 times for cluster L2.
- Start number 19 was manually annotated 2 times for cluster L2.

Info for manual annotations of cluster L4:

- Start number 13 was manually annotated 1 time for cluster L4.
- Start number 17 was manually annotated 4 times for cluster L4.
- Start number 18 was manually annotated 1 time for cluster L4.

### **Gene Information:**

Gene: Acquire49\_42 Start: 33945, Stop: 34028, Start Num: 19

Candidate Starts for Acquire49\_42:

(1, 33660), (2, 33675), (3, 33696), (4, 33702), (8, 33828), (9, 33837), (11, 33846), (12, 33858), (14, 33897), (Start: 17 @33918 has 45 MA's), (Start: 19 @33945 has 4 MA's), (24, 33972), (25, 33978),

Gene: Appletree2\_41 Start: 33845, Stop: 33955, Start Num: 17

Candidate Starts for Appletree2\_41:

(1, 33587), (2, 33602), (3, 33623), (4, 33629), (6, 33704), (8, 33755), (9, 33764), (11, 33773), (12, 33785), (14, 33824), (Start: 17 @33845 has 45 MA's), (Start: 19 @33872 has 4 MA's), (24, 33899), (25, 33905),

Gene: Archie\_44 Start: 35453, Stop: 35563, Start Num: 17

Candidate Starts for Archie\_44:

(1, 35198), (2, 35213), (3, 35234), (4, 35240), (10, 35375), (11, 35381), (Start: 17 @35453 has 45 MA's), (Start: 19 @35480 has 4 MA's), (21, 35492), (24, 35507), (25, 35513),

Gene: AvadaKedavra\_42 Start: 33954, Stop: 34037, Start Num: 19

Candidate Starts for AvadaKedavra\_42:

(1, 33669), (2, 33684), (3, 33705), (4, 33711), (8, 33837), (9, 33846), (11, 33855), (12, 33867), (14, 33906), (Start: 17 @33927 has 45 MA's), (Start: 19 @33954 has 4 MA's), (24, 33981), (25, 33987),

Gene: Bazzle\_44 Start: 35485, Stop: 35595, Start Num: 17

Candidate Starts for Bazzle\_44:

(1, 35230), (2, 35245), (3, 35266), (4, 35272), (7, 35350), (10, 35407), (11, 35413), (16, 35479), (Start: 17 @35485 has 45 MA's), (Start: 19 @35512 has 4 MA's),

Gene: BigCheese\_44 Start: 35276, Stop: 35359, Start Num: 19

Candidate Starts for BigCheese\_44:

(1, 34994), (3, 35030), (4, 35036), (10, 35171), (11, 35177), (Start: 17 @35249 has 45 MA's), (Start: 19 @35276 has 4 MA's),

Gene: BobsGarage\_44 Start: 35249, Stop: 35359, Start Num: 17

Candidate Starts for BobsGarage\_44:

(1, 34994), (3, 35030), (4, 35036), (10, 35171), (11, 35177), (Start: 17 @35249 has 45 MA's), (Start: 19 @35276 has 4 MA's),

Gene: Breezona\_44 Start: 35249, Stop: 35359, Start Num: 17

Candidate Starts for Breezona\_44:

(1, 34994), (3, 35030), (4, 35036), (10, 35171), (11, 35177), (Start: 17 @35249 has 45 MA's), (Start: 19 @35276 has 4 MA's),

Gene: Bromden\_44 Start: 35017, Stop: 35109, Start Num: 18

Candidate Starts for Bromden\_44:

(1, 34750), (2, 34765), (3, 34786), (4, 34792), (7, 34870), (10, 34927), (Start: 13 @34972 has 1 MA's), (Start: 18 @35017 has 1 MA's), (20, 35041), (21, 35044), (23, 35056),

Gene: Calm\_42 Start: 33933, Stop: 34043, Start Num: 17

Candidate Starts for Calm\_42:

(1, 33675), (2, 33690), (3, 33711), (4, 33717), (8, 33843), (9, 33852), (11, 33861), (12, 33873), (14, 33912), (Start: 17 @33933 has 45 MA's), (Start: 19 @33960 has 4 MA's), (24, 33987), (25, 33993),

Gene: Chaser\_41 Start: 33996, Stop: 34100, Start Num: 17

Candidate Starts for Chaser\_41:

(1, 33741), (2, 33756), (3, 33777), (4, 33783), (7, 33861), (10, 33918), (16, 33990), (Start: 17 @33996 has 45 MA's), (20, 34032), (23, 34047), (26, 34062), (27, 34074),

Gene: ChutneyChips\_42 Start: 34143, Stop: 34280, Start Num: 13

Candidate Starts for ChutneyChips\_42:

(1, 33921), (2, 33936), (3, 33957), (4, 33963), (7, 34041), (10, 34098), (Start: 13 @34143 has 1 MA's), (20, 34212), (22, 34224), (23, 34227), (26, 34242), (27, 34254),

Gene: CicholasNage\_42 Start: 33954, Stop: 34064, Start Num: 17

Candidate Starts for CicholasNage\_42:

(1, 33696), (2, 33711), (3, 33732), (4, 33738), (8, 33864), (9, 33873), (11, 33882), (12, 33894), (14, 33933), (Start: 17 @33954 has 45 MA's), (Start: 19 @33981 has 4 MA's), (24, 34008), (25, 34014),

Gene: Crossroads\_44 Start: 35251, Stop: 35361, Start Num: 17

Candidate Starts for Crossroads\_44:

(1, 34996), (3, 35032), (4, 35038), (10, 35173), (11, 35179), (Start: 17 @35251 has 45 MA's), (Start: 19 @35278 has 4 MA's),

Gene: DirkDirk\_41 Start: 33905, Stop: 34015, Start Num: 17

Candidate Starts for DirkDirk\_41:

(1, 33647), (2, 33662), (3, 33683), (4, 33689), (6, 33764), (8, 33815), (9, 33824), (10, 33827), (11, 33833), (12, 33845), (14, 33884), (Start: 17 @33905 has 45 MA's), (Start: 19 @33932 has 4 MA's), (24, 33959), (25, 33965),

Gene: Douge\_41 Start: 33934, Stop: 34038, Start Num: 17

Candidate Starts for Douge\_41:

(1, 33679), (2, 33694), (3, 33715), (4, 33721), (7, 33799), (10, 33856), (Start: 17 @33934 has 45 MA's), (20, 33970), (23, 33985), (26, 34000), (27, 34012),

Gene: DrSeegs\_44 Start: 35249, Stop: 35359, Start Num: 17

Candidate Starts for DrSeegs\_44:

(1, 34994), (3, 35030), (4, 35036), (10, 35171), (11, 35177), (Start: 17 @35249 has 45 MA's), (Start: 19 @35276 has 4 MA's),

Gene: DyoEdafos\_43 Start: 34256, Stop: 34360, Start Num: 17

Candidate Starts for DyoEdafos\_43:

(1, 34001), (2, 34016), (3, 34037), (4, 34043), (5, 34100), (7, 34121), (10, 34178), (Start: 17 @34256 has 45 MA's), (20, 34292), (26, 34322), (27, 34334),

Gene: Enceladus\_41 Start: 33888, Stop: 33998, Start Num: 17

Candidate Starts for Enceladus\_41:

(1, 33630), (2, 33645), (3, 33666), (4, 33672), (6, 33747), (8, 33798), (9, 33807), (11, 33816), (12, 33828), (14, 33867), (Start: 17 @33888 has 45 MA's), (Start: 19 @33915 has 4 MA's), (24, 33942), (25, 33948),

Gene: Faith1\_44 Start: 35249, Stop: 35359, Start Num: 17

Candidate Starts for Faith1\_44:

(1, 34994), (3, 35030), (4, 35036), (10, 35171), (11, 35177), (Start: 17 @35249 has 45 MA's), (Start: 19 @35276 has 4 MA's),

Gene: FarmResident\_42 Start: 33978, Stop: 34082, Start Num: 17

Candidate Starts for FarmResident\_42:

(1, 33723), (2, 33738), (3, 33759), (4, 33765), (10, 33900), (16, 33972), (Start: 17 @33978 has 45 MA's), (23, 34029), (25, 34038), (26, 34044), (27, 34056),

Gene: Finemlucis\_44 Start: 35525, Stop: 35635, Start Num: 17

Candidate Starts for Finemlucis\_44:

(1, 35270), (3, 35306), (4, 35312), (10, 35447), (11, 35453), (Start: 17 @35525 has 45 MA's), (Start: 19 @35552 has 4 MA's),

Gene: Gabriela\_44 Start: 35511, Stop: 35621, Start Num: 17

Candidate Starts for Gabriela\_44:

(1, 35256), (3, 35292), (4, 35298), (10, 35433), (11, 35439), (Start: 17 @35511 has 45 MA's), (Start: 19 @35538 has 4 MA's),

Gene: Gardann\_44 Start: 35250, Stop: 35360, Start Num: 17

Candidate Starts for Gardann\_44:

(1, 34995), (3, 35031), (4, 35037), (10, 35172), (11, 35178), (Start: 17 @35250 has 45 MA's), (Start: 19 @35277 has 4 MA's),

Gene: Halena\_41 Start: 33929, Stop: 34039, Start Num: 17

Candidate Starts for Halena\_41:

(1, 33671), (2, 33686), (3, 33707), (4, 33713), (8, 33839), (9, 33848), (14, 33908), (15, 33917), (Start: 17 @33929 has 45 MA's), (Start: 19 @33956 has 4 MA's), (21, 33968), (25, 33989),

Gene: Itos\_43 Start: 34155, Stop: 34265, Start Num: 17

Candidate Starts for Itos\_43:

(1, 33900), (3, 33936), (4, 33942), (10, 34077), (11, 34083), (Start: 17 @34155 has 45 MA's), (Start: 19 @34182 has 4 MA's),

Gene: JoeDirt\_41 Start: 33886, Stop: 33996, Start Num: 17

Candidate Starts for JoeDirt\_41:

(1, 33628), (2, 33643), (3, 33664), (4, 33670), (6, 33745), (8, 33796), (9, 33805), (11, 33814), (12, 33826), (14, 33865), (Start: 17 @33886 has 45 MA's), (Start: 19 @33913 has 4 MA's), (24, 33940), (25, 33946),

Gene: Kahlid\_44 Start: 35255, Stop: 35365, Start Num: 17

Candidate Starts for Kahlid\_44:

(1, 35000), (3, 35036), (4, 35042), (10, 35177), (11, 35183), (Start: 17 @35255 has 45 MA's), (Start: 19 @35282 has 4 MA's),

Gene: Kropertea\_42 Start: 34079, Stop: 34183, Start Num: 17

Candidate Starts for Kropertea\_42:

(1, 33824), (2, 33839), (3, 33860), (4, 33866), (5, 33923), (7, 33944), (10, 34001), (Start: 17 @34079 has 45 MA's), (20, 34115), (26, 34145), (27, 34157),

Gene: LeBron\_42 Start: 33930, Stop: 34040, Start Num: 17

Candidate Starts for LeBron\_42:

(1, 33672), (2, 33687), (3, 33708), (4, 33714), (6, 33789), (8, 33840), (9, 33849), (11, 33858), (12, 33870), (14, 33909), (Start: 17 @33930 has 45 MA's), (Start: 19 @33957 has 4 MA's), (24, 33984), (25, 33990),

Gene: Lewan\_44 Start: 35242, Stop: 35352, Start Num: 17

Candidate Starts for Lewan\_44:

(1, 34987), (3, 35023), (4, 35029), (10, 35164), (11, 35170), (Start: 17 @35242 has 45 MA's), (Start: 19 @35269 has 4 MA's),

Gene: LilDestine\_44 Start: 35247, Stop: 35357, Start Num: 17

Candidate Starts for LilDestine\_44:

(1, 34992), (3, 35028), (4, 35034), (10, 35169), (11, 35175), (Start: 17 @35247 has 45 MA's), (Start: 19 @35274 has 4 MA's),

Gene: MAckerman\_42 Start: 33923, Stop: 34033, Start Num: 17

Candidate Starts for MAckerman\_42:

(1, 33665), (2, 33680), (3, 33701), (4, 33707), (8, 33833), (9, 33842), (14, 33902), (15, 33911), (Start: 17 @33923 has 45 MA's), (Start: 19 @33950 has 4 MA's), (21, 33962), (25, 33983),

Gene: Miley16\_44 Start: 35249, Stop: 35359, Start Num: 17

Candidate Starts for Miley16\_44:

(1, 34994), (3, 35030), (4, 35036), (10, 35171), (11, 35177), (Start: 17 @35249 has 45 MA's), (Start: 19 @35276 has 4 MA's),

Gene: Netyap\_44 Start: 35276, Stop: 35359, Start Num: 19

Candidate Starts for Netyap\_44:

(1, 34994), (3, 35030), (4, 35036), (10, 35171), (11, 35177), (Start: 17 @35249 has 45 MA's), (Start: 19 @35276 has 4 MA's),

Gene: Nicholasp3\_44 Start: 35250, Stop: 35360, Start Num: 17

Candidate Starts for Nicholasp3\_44:

(1, 34995), (3, 35031), (4, 35037), (10, 35172), (11, 35178), (Start: 17 @35250 has 45 MA's), (Start: 19 @35277 has 4 MA's),

Gene: OhShagHennessy\_41 Start: 33876, Stop: 33986, Start Num: 17

Candidate Starts for OhShagHennessy\_41:

(1, 33618), (2, 33633), (3, 33654), (4, 33660), (6, 33735), (8, 33786), (9, 33795), (11, 33804), (12, 33816), (14, 33855), (Start: 17 @33876 has 45 MA's), (Start: 19 @33903 has 4 MA's), (24, 33930), (25, 33936),

Gene: OverPar\_44 Start: 35281, Stop: 35391, Start Num: 17

Candidate Starts for OverPar\_44:

(1, 35026), (3, 35062), (4, 35068), (10, 35203), (11, 35209), (Start: 17 @35281 has 45 MA's), (Start: 19 @35308 has 4 MA's),

Gene: Poochiewood\_41 Start: 33883, Stop: 34014, Start Num: 14

Candidate Starts for Poochiewood\_41:

(1, 33646), (2, 33661), (3, 33682), (4, 33688), (6, 33763), (8, 33814), (9, 33823), (11, 33832), (12, 33844), (14, 33883), (Start: 17 @33904 has 45 MA's), (Start: 19 @33931 has 4 MA's), (24, 33958), (25, 33964),

Gene: Quby\_42 Start: 33934, Stop: 34038, Start Num: 17

Candidate Starts for Quby\_42:

(1, 33679), (2, 33694), (3, 33715), (4, 33721), (7, 33799), (10, 33856), (16, 33928), (Start: 17 @33934 has 45 MA's), (20, 33970), (23, 33985), (26, 34000), (27, 34012),

Gene: Rose5\_41 Start: 33918, Stop: 34028, Start Num: 17

Candidate Starts for Rose5\_41:

(1, 33660), (2, 33675), (3, 33696), (4, 33702), (8, 33828), (9, 33837), (11, 33846), (12, 33858), (14, 33897), (Start: 17 @33918 has 45 MA's), (Start: 19 @33945 has 4 MA's), (24, 33972), (25, 33978),

Gene: Rumpelstiltskin\_44 Start: 35516, Stop: 35626, Start Num: 17

Candidate Starts for Rumpelstiltskin\_44:

(1, 35261), (3, 35297), (4, 35303), (10, 35438), (11, 35444), (Start: 17 @35516 has 45 MA's), (Start: 19 @35543 has 4 MA's),

Gene: Sheng711\_42 Start: 34040, Stop: 34144, Start Num: 17

Candidate Starts for Sheng711\_42:

(1, 33785), (2, 33800), (3, 33821), (4, 33827), (7, 33905), (10, 33962), (16, 34034), (Start: 17 @34040 has 45 MA's), (23, 34091), (26, 34106), (27, 34118),

Gene: Silverleaf\_41 Start: 33918, Stop: 34028, Start Num: 17

Candidate Starts for Silverleaf\_41:

(1, 33660), (2, 33675), (3, 33696), (4, 33702), (8, 33828), (9, 33837), (11, 33846), (12, 33858), (14, 33897), (15, 33906), (Start: 17 @33918 has 45 MA's), (Start: 19 @33945 has 4 MA's), (24, 33972), (25, 33978),

Gene: Tyson\_41 Start: 33919, Stop: 34029, Start Num: 17

Candidate Starts for Tyson\_41:

(1, 33661), (2, 33676), (3, 33697), (4, 33703), (8, 33829), (9, 33838), (12, 33859), (14, 33898), (15, 33907), (Start: 17 @33919 has 45 MA's), (Start: 19 @33946 has 4 MA's), (24, 33973), (25, 33979),

Gene: UPIE\_42 Start: 33902, Stop: 34012, Start Num: 17

Candidate Starts for UPIE\_42:

(1, 33644), (2, 33659), (3, 33680), (4, 33686), (6, 33761), (8, 33812), (9, 33821), (11, 33830), (12, 33842), (14, 33881), (Start: 17 @33902 has 45 MA's), (Start: 19 @33929 has 4 MA's), (24, 33956), (25, 33962),

Gene: Underpass\_44 Start: 35250, Stop: 35360, Start Num: 17

Candidate Starts for Underpass\_44:

(1, 34995), (3, 35031), (4, 35037), (10, 35172), (11, 35178), (Start: 17 @35250 has 45 MA's), (Start: 19 @35277 has 4 MA's),

Gene: Vetric\_44 Start: 35256, Stop: 35366, Start Num: 17

Candidate Starts for Vetric\_44:

(1, 35001), (3, 35037), (4, 35043), (10, 35178), (11, 35184), (Start: 17 @35256 has 45 MA's), (Start: 19 @35283 has 4 MA's),

Gene: Wamburgxpress\_42 Start: 33917, Stop: 34027, Start Num: 17

Candidate Starts for Wamburgxpress\_42:

(1, 33659), (2, 33674), (3, 33695), (4, 33701), (6, 33776), (8, 33827), (9, 33836), (11, 33845), (12, 33857), (14, 33896), (Start: 17 @33917 has 45 MA's), (Start: 19 @33944 has 4 MA's), (24, 33971), (25, 33977),

Gene: Wigglewigg\_44 Start: 35282, Stop: 35392, Start Num: 17

Candidate Starts for Wigglewigg\_44:

(1, 35027), (3, 35063), (4, 35069), (10, 35204), (11, 35210), (Start: 17 @35282 has 45 MA's), (Start: 19 @35309 has 4 MA's),

Gene: Wilder\_44 Start: 35255, Stop: 35365, Start Num: 17

Candidate Starts for Wilder\_44:

(1, 35000), (3, 35036), (4, 35042), (10, 35177), (11, 35183), (Start: 17 @35255 has 45 MA's), (Start: 19 @35282 has 4 MA's),

Gene: Winky\_44 Start: 35249, Stop: 35359, Start Num: 17

Candidate Starts for Winky\_44:

(1, 34994), (3, 35030), (4, 35036), (10, 35171), (11, 35177), (Start: 17 @35249 has 45 MA's), (Start: 19 @35276 has 4 MA's),

Gene: Wyatt2\_42 Start: 33918, Stop: 34028, Start Num: 17

Candidate Starts for Wyatt2\_42:

(1, 33660), (2, 33675), (3, 33696), (4, 33702), (8, 33828), (9, 33837), (11, 33846), (12, 33858), (14, 33897), (Start: 17 @33918 has 45 MA's), (Start: 19 @33945 has 4 MA's), (24, 33972), (25, 33978),

Gene: Zakai\_44 Start: 35507, Stop: 35617, Start Num: 17

Candidate Starts for Zakai\_44:

(1, 35252), (3, 35288), (4, 35294), (10, 35429), (11, 35435), (Start: 17 @35507 has 45 MA's), (Start: 19 @35534 has 4 MA's),

Gene: Zaria\_42 Start: 33933, Stop: 34043, Start Num: 17

Candidate Starts for Zaria\_42:

(1, 33675), (2, 33690), (3, 33711), (4, 33717), (8, 33843), (9, 33852), (11, 33861), (12, 33873), (14, 33912), (Start: 17 @33933 has 45 MA's), (Start: 19 @33960 has 4 MA's), (24, 33987), (25, 33993),