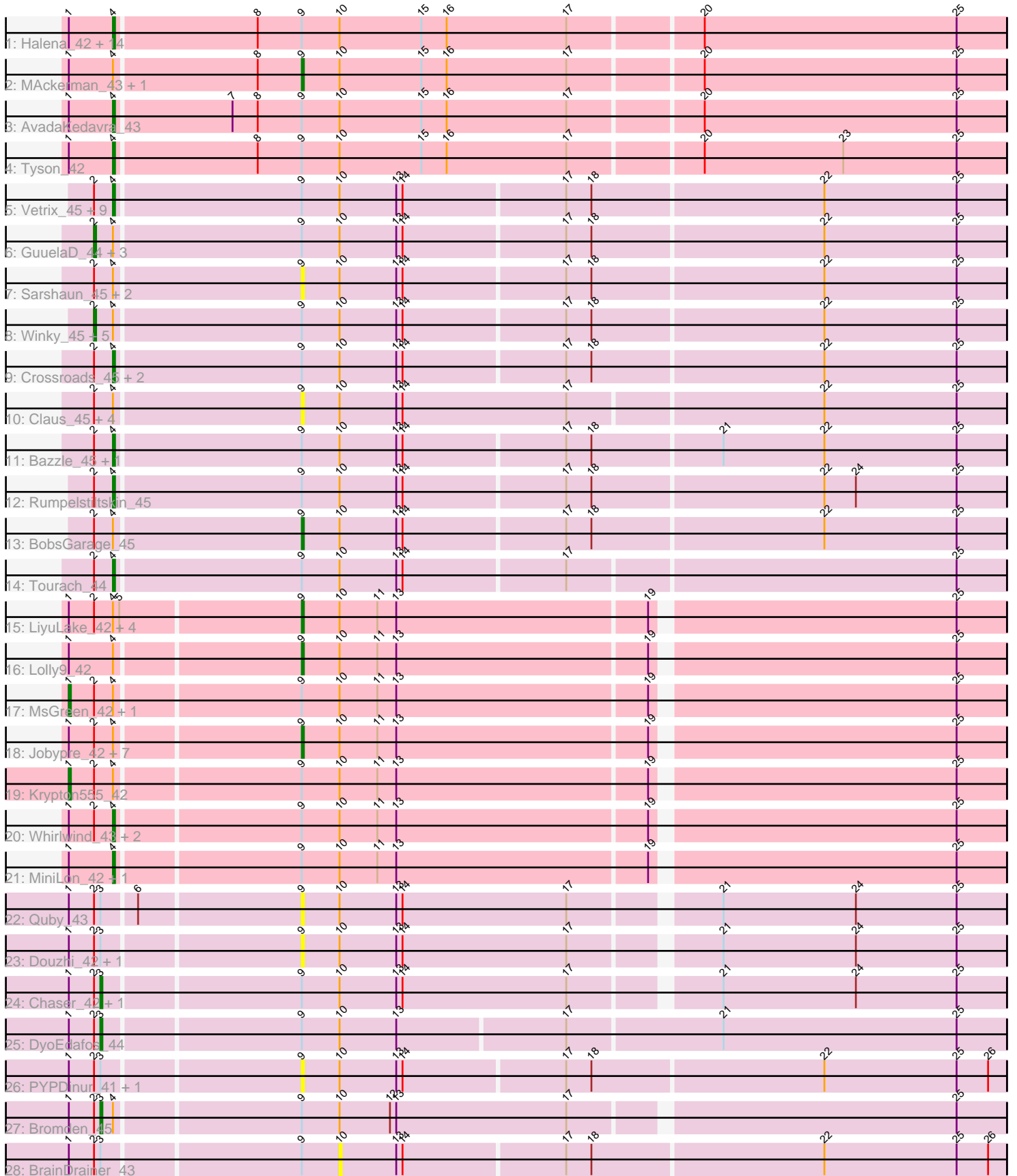


# Pham 193921



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 193921 Report

This analysis was run 11/02/24 on database version 579.

Pham number 193921 has 87 members, 20 are drafts.

Phages represented in each track:

- Track 1 : Halena\_42, DirkDirk\_42, Wamburgexpress\_43, JoeDirt\_42, OhShagHennessy\_42, Appletree2\_42, Calm\_43, Wyatt2\_43, Rose5\_42, Silverleaf\_42, LeBron\_43, Zaria\_43, Acquire49\_43, UPIE\_43, Enceladus\_42
- Track 2 : MAckerman\_43, CicholasNage\_43
- Track 3 : AvadaKedavra\_43
- Track 4 : Tyson\_42
- Track 5 : Vetrix\_45, Lewan\_45, Kahlid\_45, Gabriela\_45, Netyap\_45, Wilder\_45, MkaliMitinis3\_45, BigCheese\_45, LilDestine\_45, DrSeegs\_45
- Track 6 : GuuelaD\_44, Nicholasp3\_45, Loadrie\_44, Wigglewiggle\_45
- Track 7 : Sarshaun\_45, Hafay\_45, Soap141\_45
- Track 8 : Winky\_45, Breezona\_45, Itos\_44, Finemlucis\_45, Faith1\_45, Miley16\_45
- Track 9 : Crossroads\_45, Gardann\_45, Zakai\_45
- Track 10 : Claus\_45, DHan\_46, ZhongYanYuan\_43, DanBing\_44, Baoshan\_43
- Track 11 : Bazzle\_45, Archie\_45
- Track 12 : Rumpelstiltskin\_45
- Track 13 : BobsGarage\_45
- Track 14 : Tourach\_44
- Track 15 : LiyuLake\_42, BourbonZero\_41, KirDoubleO7\_40, DuncansLeg\_42, Ellson\_42
- Track 16 : Lolly9\_42
- Track 17 : MsGreen\_42, Clautastrophe\_42
- Track 18 : Jobypre\_42, Samty\_42, Kingsolomon\_42, Bellis\_42, Snenia\_42, Finny\_42, Nicholas\_42, Moostard\_42
- Track 19 : Krypton555\_42
- Track 20 : Whirlwind\_43, Lumos\_42, Jubie\_42
- Track 21 : MiniLon\_42, MiniMac\_42
- Track 22 : Quby\_43
- Track 23 : Douzhi\_42, FarmResident\_43
- Track 24 : Chaser\_42, Douge\_42
- Track 25 : DyoEdafos\_44
- Track 26 : PYPDinur\_41, Sheng711\_43
- Track 27 : Bromden\_45
- Track 28 : BrainDrainer\_43

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

The start number called the most often in the published annotations is 4, it was called in 39 of the 67 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Acquire49\_43, Appletree2\_42, Archie\_45, AvadaKedavra\_43, Bazzle\_45, BigCheese\_45, Calm\_43, Crossroads\_45, DirkDirk\_42, DrSeegs\_45, Enceladus\_42, Gabriela\_45, Gardann\_45, Halena\_42, JoeDirt\_42, Jubie\_42, Kahlid\_45, LeBron\_43, Lewan\_45, LilDestine\_45, Lumos\_42, MiniLon\_42, MiniMac\_42, MkaliMitinis3\_45, Netyap\_45, OhShagHennessy\_42, Rose5\_42, Rumpelstiltskin\_45, Silverleaf\_42, Tourach\_44, Tyson\_42, UPIE\_43, Vatrix\_45, Wamburgrxpress\_43, Whirlwind\_43, Wilder\_45, Wyatt2\_43, Zakai\_45, Zaria\_43,

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

- Baoshan\_43, Bellis\_42, BobsGarage\_45, BourbonZero\_41, Breezona\_45, Bromden\_45, CicholasNage\_43, Claus\_45, Clautastrophe\_42, DHan\_46, DanBing\_44, DuncansLeg\_42, Ellson\_42, Faith1\_45, Finemlucis\_45, Finnry\_42, GuuelaD\_44, Hafay\_45, Itos\_44, Jobypre\_42, Kingsolomon\_42, KirDoubleO7\_40, Krypton555\_42, LiyuLake\_42, Loadrie\_44, Lolly9\_42, MAckerman\_43, Miley16\_45, Moostard\_42, MsGreen\_42, Nicholas\_42, Nicholasp3\_45, Samty\_42, Sarshaun\_45, Snenia\_42, Soap141\_45, Wigglewiggle\_45, Winky\_45, ZhongYanYuan\_43,

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

- BrainDrainer\_43, Chaser\_42, Douge\_42, Douzhi\_42, DyoEdafos\_44, FarmResident\_43, PYPDinur\_41, Quby\_43, Sheng711\_43,

### Summary by start number:

Start 1:

- Found in 51 of 87 ( 58.6% ) of genes in pham
- Manual Annotations of this start: 3 of 67
- Called 5.9% of time when present
- Phage (with cluster) where this start called: Clautastrophe\_42 (L3), Krypton555\_42 (L3), MsGreen\_42 (L3),

Start 2:

- Found in 65 of 87 ( 74.7% ) of genes in pham
- Manual Annotations of this start: 10 of 67
- Called 15.4% of time when present
- Phage (with cluster) where this start called: Breezona\_45 (L2), Faith1\_45 (L2), Finemlucis\_45 (L2), GuuelaD\_44 (L2), Itos\_44 (L2), Loadrie\_44 (L2), Miley16\_45 (L2), Nicholasp3\_45 (L2), Wigglewiggle\_45 (L2), Winky\_45 (L2),

Start 3:

- Found in 10 of 87 ( 11.5% ) of genes in pham
- Manual Annotations of this start: 4 of 67
- Called 40.0% of time when present
- Phage (with cluster) where this start called: Bromden\_45 (L4), Chaser\_42 (L4), Douge\_42 (L4), DyoEdafos\_44 (L4),

Start 4:

- Found in 78 of 87 ( 89.7% ) of genes in pham
- Manual Annotations of this start: 39 of 67

- Called 50.0% of time when present
- Phage (with cluster) where this start called: Acquire49\_43 (L1), Appletree2\_42 (L1), Archie\_45 (L2), AvadaKedavra\_43 (L1), Bazzle\_45 (L2), BigCheese\_45 (L2), Calm\_43 (L1), Crossroads\_45 (L2), DirkDirk\_42 (L1), DrSeegs\_45 (L2), Enceladus\_42 (L1), Gabriela\_45 (L2), Gardann\_45 (L2), Halena\_42 (L1), JoeDirt\_42 (L1), Jubie\_42 (L3), Kahlid\_45 (L2), LeBron\_43 (L1), Lewan\_45 (L2), LilDestine\_45 (L2), Lumos\_42 (L3), MiniLon\_42 (L3), MiniMac\_42 (L3), MkaliMitinis3\_45 (L2), Netyap\_45 (L2), OhShagHennessy\_42 (L1), Rose5\_42 (L1), Rumpelstiltskin\_45 (L2), Silverleaf\_42 (L1), Tourach\_44 (L2), Tyson\_42 (L1), UPIE\_43 (L1), Vetric\_45 (L2), Wamburggrxpress\_43 (L1), Whirlwind\_43 (L3), Wilder\_45 (L2), Wyatt2\_43 (L1), Zakai\_45 (L2), Zaria\_43 (L1),

#### Start 9:

- Found in 87 of 87 ( 100.0% ) of genes in pham
- Manual Annotations of this start: 11 of 67
- Called 34.5% of time when present
- Phage (with cluster) where this start called: Baoshan\_43 (L2), Bellis\_42 (L3), BobsGarage\_45 (L2), BourbonZero\_41 (L3), CicholasNage\_43 (L1), Claus\_45 (L2), DHan\_46 (L2), DanBing\_44 (L2), Douzhi\_42 (L4), DuncansLeg\_42 (L3), Ellson\_42 (L3), FarmResident\_43 (L4), Finnry\_42 (L3), Hafay\_45 (L2), Jobypre\_42 (L3), Kingsolomon\_42 (L3), KirDoubleO7\_40 (L3), LiyuLake\_42 (L3), Lolly9\_42 (L3), MAckerman\_43 (L1), Moostard\_42 (L3), Nicholas\_42 (L3), PYPDinur\_41 (L4), Quby\_43 (L4), Samty\_42 (L3), Sarshaun\_45 (L2), Sheng711\_43 (L4), Snenia\_42 (L3), Soap141\_45 (L2), ZhongYanYuan\_43 (L2),

#### Start 10:

- Found in 87 of 87 ( 100.0% ) of genes in pham
- No Manual Annotations of this start.
- Called 1.1% of time when present
- Phage (with cluster) where this start called: BrainDrainer\_43 (L4),

### Summary by clusters:

There are 4 clusters represented in this pham: L4, L2, L3, L1,

Info for manual annotations of cluster L1:

- Start number 4 was manually annotated 17 times for cluster L1.
- Start number 9 was manually annotated 2 times for cluster L1.

Info for manual annotations of cluster L2:

- Start number 2 was manually annotated 10 times for cluster L2.
- Start number 4 was manually annotated 17 times for cluster L2.
- Start number 9 was manually annotated 1 time for cluster L2.

Info for manual annotations of cluster L3:

- Start number 1 was manually annotated 3 times for cluster L3.
- Start number 4 was manually annotated 5 times for cluster L3.
- Start number 9 was manually annotated 8 times for cluster L3.

Info for manual annotations of cluster L4:

- Start number 3 was manually annotated 4 times for cluster L4.

### **Gene Information:**

Gene: Acquire49\_43 Start: 34025, Stop: 34441, Start Num: 4

Candidate Starts for Acquire49\_43:

(Start: 1 @34004 has 3 MA's), (Start: 4 @34025 has 39 MA's), (8, 34091), (Start: 9 @34112 has 11 MA's), (10, 34130), (15, 34169), (16, 34181), (17, 34238), (20, 34298), (25, 34418),

Gene: Appletree2\_42 Start: 33952, Stop: 34368, Start Num: 4

Candidate Starts for Appletree2\_42:

(Start: 1 @33931 has 3 MA's), (Start: 4 @33952 has 39 MA's), (8, 34018), (Start: 9 @34039 has 11 MA's), (10, 34057), (15, 34096), (16, 34108), (17, 34165), (20, 34225), (25, 34345),

Gene: Archie\_45 Start: 35560, Stop: 35976, Start Num: 4

Candidate Starts for Archie\_45:

(Start: 2 @35551 has 10 MA's), (Start: 4 @35560 has 39 MA's), (Start: 9 @35647 has 11 MA's), (10, 35665), (13, 35692), (14, 35695), (17, 35770), (18, 35782), (21, 35842), (22, 35890), (25, 35953),

Gene: AvadaKedavra\_43 Start: 34034, Stop: 34450, Start Num: 4

Candidate Starts for AvadaKedavra\_43:

(Start: 1 @34013 has 3 MA's), (Start: 4 @34034 has 39 MA's), (7, 34088), (8, 34100), (Start: 9 @34121 has 11 MA's), (10, 34139), (15, 34178), (16, 34190), (17, 34247), (20, 34307), (25, 34427),

Gene: Baoshan\_43 Start: 35304, Stop: 35633, Start Num: 9

Candidate Starts for Baoshan\_43:

(Start: 2 @35208 has 10 MA's), (Start: 4 @35217 has 39 MA's), (Start: 9 @35304 has 11 MA's), (10, 35322), (13, 35349), (14, 35352), (17, 35430), (22, 35547), (25, 35610),

Gene: Bazzle\_45 Start: 35592, Stop: 36008, Start Num: 4

Candidate Starts for Bazzle\_45:

(Start: 2 @35583 has 10 MA's), (Start: 4 @35592 has 39 MA's), (Start: 9 @35679 has 11 MA's), (10, 35697), (13, 35724), (14, 35727), (17, 35802), (18, 35814), (21, 35874), (22, 35922), (25, 35985),

Gene: Bellis\_42 Start: 35732, Stop: 36055, Start Num: 9

Candidate Starts for Bellis\_42:

(Start: 1 @35627 has 3 MA's), (Start: 2 @35639 has 10 MA's), (Start: 4 @35648 has 39 MA's), (Start: 9 @35732 has 11 MA's), (10, 35750), (11, 35768), (13, 35777), (19, 35894), (25, 36032),

Gene: BigCheese\_45 Start: 35356, Stop: 35772, Start Num: 4

Candidate Starts for BigCheese\_45:

(Start: 2 @35347 has 10 MA's), (Start: 4 @35356 has 39 MA's), (Start: 9 @35443 has 11 MA's), (10, 35461), (13, 35488), (14, 35491), (17, 35566), (18, 35578), (22, 35686), (25, 35749),

Gene: BobsGarage\_45 Start: 35443, Stop: 35772, Start Num: 9

Candidate Starts for BobsGarage\_45:

(Start: 2 @35347 has 10 MA's), (Start: 4 @35356 has 39 MA's), (Start: 9 @35443 has 11 MA's), (10, 35461), (13, 35488), (14, 35491), (17, 35566), (18, 35578), (22, 35686), (25, 35749),

Gene: BourbonZero\_41 Start: 35717, Stop: 36040, Start Num: 9

Candidate Starts for BourbonZero\_41:

(Start: 1 @35609 has 3 MA's), (Start: 2 @35621 has 10 MA's), (Start: 4 @35630 has 39 MA's), (5, 35633), (Start: 9 @35717 has 11 MA's), (10, 35735), (11, 35753), (13, 35762), (19, 35879), (25, 36017),

Gene: BrainDrainer\_43 Start: 34388, Stop: 34699, Start Num: 10

Candidate Starts for BrainDrainer\_43:

(Start: 1 @34265 has 3 MA's), (Start: 2 @34277 has 10 MA's), (Start: 3 @34280 has 4 MA's), (Start: 9 @34370 has 11 MA's), (10, 34388), (13, 34415), (14, 34418), (17, 34493), (18, 34505), (22, 34613), (25, 34676), (26, 34691),

Gene: Breezona\_45 Start: 35347, Stop: 35772, Start Num: 2

Candidate Starts for Breezona\_45:

(Start: 2 @35347 has 10 MA's), (Start: 4 @35356 has 39 MA's), (Start: 9 @35443 has 11 MA's), (10, 35461), (13, 35488), (14, 35491), (17, 35566), (18, 35578), (22, 35686), (25, 35749),

Gene: Bromden\_45 Start: 35106, Stop: 35519, Start Num: 3

Candidate Starts for Bromden\_45:

(Start: 1 @35091 has 3 MA's), (Start: 2 @35103 has 10 MA's), (Start: 3 @35106 has 4 MA's), (Start: 4 @35112 has 39 MA's), (Start: 9 @35196 has 11 MA's), (10, 35214), (12, 35238), (13, 35241), (17, 35322), (25, 35496),

Gene: Calm\_43 Start: 34040, Stop: 34456, Start Num: 4

Candidate Starts for Calm\_43:

(Start: 1 @34019 has 3 MA's), (Start: 4 @34040 has 39 MA's), (8, 34106), (Start: 9 @34127 has 11 MA's), (10, 34145), (15, 34184), (16, 34196), (17, 34253), (20, 34313), (25, 34433),

Gene: Chaser\_42 Start: 34097, Stop: 34510, Start Num: 3

Candidate Starts for Chaser\_42:

(Start: 1 @34082 has 3 MA's), (Start: 2 @34094 has 10 MA's), (Start: 3 @34097 has 4 MA's), (Start: 9 @34187 has 11 MA's), (10, 34205), (13, 34232), (14, 34235), (17, 34313), (21, 34376), (24, 34439), (25, 34487),

Gene: CicholasNage\_43 Start: 34148, Stop: 34477, Start Num: 9

Candidate Starts for CicholasNage\_43:

(Start: 1 @34040 has 3 MA's), (Start: 4 @34061 has 39 MA's), (8, 34127), (Start: 9 @34148 has 11 MA's), (10, 34166), (15, 34205), (16, 34217), (17, 34274), (20, 34334), (25, 34454),

Gene: Claus\_45 Start: 35462, Stop: 35791, Start Num: 9

Candidate Starts for Claus\_45:

(Start: 2 @35366 has 10 MA's), (Start: 4 @35375 has 39 MA's), (Start: 9 @35462 has 11 MA's), (10, 35480), (13, 35507), (14, 35510), (17, 35588), (22, 35705), (25, 35768),

Gene: Clautastrophe\_42 Start: 35625, Stop: 36053, Start Num: 1

Candidate Starts for Clautastrophe\_42:

(Start: 1 @35625 has 3 MA's), (Start: 2 @35637 has 10 MA's), (Start: 4 @35646 has 39 MA's), (Start: 9 @35730 has 11 MA's), (10, 35748), (11, 35766), (13, 35775), (19, 35892), (25, 36030),

Gene: Crossroads\_45 Start: 35358, Stop: 35774, Start Num: 4

Candidate Starts for Crossroads\_45:

(Start: 2 @35349 has 10 MA's), (Start: 4 @35358 has 39 MA's), (Start: 9 @35445 has 11 MA's), (10, 35463), (13, 35490), (14, 35493), (17, 35568), (18, 35580), (22, 35688), (25, 35751),

Gene: DHan\_46 Start: 35403, Stop: 35732, Start Num: 9

Candidate Starts for DHan\_46:

(Start: 2 @35307 has 10 MA's), (Start: 4 @35316 has 39 MA's), (Start: 9 @35403 has 11 MA's), (10, 35421), (13, 35448), (14, 35451), (17, 35529), (22, 35646), (25, 35709),

Gene: DanBing\_44 Start: 35295, Stop: 35624, Start Num: 9

Candidate Starts for DanBing\_44:

(Start: 2 @35199 has 10 MA's), (Start: 4 @35208 has 39 MA's), (Start: 9 @35295 has 11 MA's), (10, 35313), (13, 35340), (14, 35343), (17, 35421), (22, 35538), (25, 35601),

Gene: DirkDirk\_42 Start: 34012, Stop: 34428, Start Num: 4

Candidate Starts for DirkDirk\_42:

(Start: 1 @33991 has 3 MA's), (Start: 4 @34012 has 39 MA's), (8, 34078), (Start: 9 @34099 has 11 MA's), (10, 34117), (15, 34156), (16, 34168), (17, 34225), (20, 34285), (25, 34405),

Gene: Douge\_42 Start: 34035, Stop: 34448, Start Num: 3

Candidate Starts for Douge\_42:

(Start: 1 @34020 has 3 MA's), (Start: 2 @34032 has 10 MA's), (Start: 3 @34035 has 4 MA's), (Start: 9 @34125 has 11 MA's), (10, 34143), (13, 34170), (14, 34173), (17, 34251), (21, 34314), (24, 34377), (25, 34425),

Gene: Douzhi\_42 Start: 34231, Stop: 34554, Start Num: 9

Candidate Starts for Douzhi\_42:

(Start: 1 @34126 has 3 MA's), (Start: 2 @34138 has 10 MA's), (Start: 3 @34141 has 4 MA's), (Start: 9 @34231 has 11 MA's), (10, 34249), (13, 34276), (14, 34279), (17, 34357), (21, 34420), (24, 34483), (25, 34531),

Gene: DrSeegs\_45 Start: 35356, Stop: 35772, Start Num: 4

Candidate Starts for DrSeegs\_45:

(Start: 2 @35347 has 10 MA's), (Start: 4 @35356 has 39 MA's), (Start: 9 @35443 has 11 MA's), (10, 35461), (13, 35488), (14, 35491), (17, 35566), (18, 35578), (22, 35686), (25, 35749),

Gene: DuncansLeg\_42 Start: 35754, Stop: 36077, Start Num: 9

Candidate Starts for DuncansLeg\_42:

(Start: 1 @35646 has 3 MA's), (Start: 2 @35658 has 10 MA's), (Start: 4 @35667 has 39 MA's), (5, 35670), (Start: 9 @35754 has 11 MA's), (10, 35772), (11, 35790), (13, 35799), (19, 35916), (25, 36054),

Gene: DyoEdafos\_44 Start: 34357, Stop: 34776, Start Num: 3

Candidate Starts for DyoEdafos\_44:

(Start: 1 @34342 has 3 MA's), (Start: 2 @34354 has 10 MA's), (Start: 3 @34357 has 4 MA's), (Start: 9 @34447 has 11 MA's), (10, 34465), (13, 34492), (17, 34570), (21, 34642), (25, 34753),

Gene: Ellson\_42 Start: 35730, Stop: 36053, Start Num: 9

Candidate Starts for Ellson\_42:

(Start: 1 @35622 has 3 MA's), (Start: 2 @35634 has 10 MA's), (Start: 4 @35643 has 39 MA's), (5, 35646), (Start: 9 @35730 has 11 MA's), (10, 35748), (11, 35766), (13, 35775), (19, 35892), (25, 36030),

Gene: Enceladus\_42 Start: 33995, Stop: 34411, Start Num: 4

Candidate Starts for Enceladus\_42:

(Start: 1 @33974 has 3 MA's), (Start: 4 @33995 has 39 MA's), (8, 34061), (Start: 9 @34082 has 11 MA's), (10, 34100), (15, 34139), (16, 34151), (17, 34208), (20, 34268), (25, 34388),

Gene: Faith1\_45 Start: 35347, Stop: 35772, Start Num: 2

Candidate Starts for Faith1\_45:

(Start: 2 @35347 has 10 MA's), (Start: 4 @35356 has 39 MA's), (Start: 9 @35443 has 11 MA's), (10, 35461), (13, 35488), (14, 35491), (17, 35566), (18, 35578), (22, 35686), (25, 35749),

Gene: FarmResident\_43 Start: 34169, Stop: 34492, Start Num: 9  
Candidate Starts for FarmResident\_43:  
(Start: 1 @34064 has 3 MA's), (Start: 2 @34076 has 10 MA's), (Start: 3 @34079 has 4 MA's), (Start: 9 @34169 has 11 MA's), (10, 34187), (13, 34214), (14, 34217), (17, 34295), (21, 34358), (24, 34421), (25, 34469),

Gene: Finemlucis\_45 Start: 35623, Stop: 36048, Start Num: 2  
Candidate Starts for Finemlucis\_45:  
(Start: 2 @35623 has 10 MA's), (Start: 4 @35632 has 39 MA's), (Start: 9 @35719 has 11 MA's), (10, 35737), (13, 35764), (14, 35767), (17, 35842), (18, 35854), (22, 35962), (25, 36025),

Gene: Finnry\_42 Start: 35733, Stop: 36056, Start Num: 9  
Candidate Starts for Finnry\_42:  
(Start: 1 @35628 has 3 MA's), (Start: 2 @35640 has 10 MA's), (Start: 4 @35649 has 39 MA's), (Start: 9 @35733 has 11 MA's), (10, 35751), (11, 35769), (13, 35778), (19, 35895), (25, 36033),

Gene: Gabriela\_45 Start: 35618, Stop: 36034, Start Num: 4  
Candidate Starts for Gabriela\_45:  
(Start: 2 @35609 has 10 MA's), (Start: 4 @35618 has 39 MA's), (Start: 9 @35705 has 11 MA's), (10, 35723), (13, 35750), (14, 35753), (17, 35828), (18, 35840), (22, 35948), (25, 36011),

Gene: Gardann\_45 Start: 35357, Stop: 35773, Start Num: 4  
Candidate Starts for Gardann\_45:  
(Start: 2 @35348 has 10 MA's), (Start: 4 @35357 has 39 MA's), (Start: 9 @35444 has 11 MA's), (10, 35462), (13, 35489), (14, 35492), (17, 35567), (18, 35579), (22, 35687), (25, 35750),

Gene: GuuelaD\_44 Start: 35386, Stop: 35811, Start Num: 2  
Candidate Starts for GuuelaD\_44:  
(Start: 2 @35386 has 10 MA's), (Start: 4 @35395 has 39 MA's), (Start: 9 @35482 has 11 MA's), (10, 35500), (13, 35527), (14, 35530), (17, 35605), (18, 35617), (22, 35725), (25, 35788),

Gene: Hafay\_45 Start: 35477, Stop: 35806, Start Num: 9  
Candidate Starts for Hafay\_45:  
(Start: 2 @35381 has 10 MA's), (Start: 4 @35390 has 39 MA's), (Start: 9 @35477 has 11 MA's), (10, 35495), (13, 35522), (14, 35525), (17, 35600), (18, 35612), (22, 35720), (25, 35783),

Gene: Halena\_42 Start: 34036, Stop: 34452, Start Num: 4  
Candidate Starts for Halena\_42:  
(Start: 1 @34015 has 3 MA's), (Start: 4 @34036 has 39 MA's), (8, 34102), (Start: 9 @34123 has 11 MA's), (10, 34141), (15, 34180), (16, 34192), (17, 34249), (20, 34309), (25, 34429),

Gene: Itos\_44 Start: 34253, Stop: 34678, Start Num: 2  
Candidate Starts for Itos\_44:  
(Start: 2 @34253 has 10 MA's), (Start: 4 @34262 has 39 MA's), (Start: 9 @34349 has 11 MA's), (10, 34367), (13, 34394), (14, 34397), (17, 34472), (18, 34484), (22, 34592), (25, 34655),

Gene: Jobypre\_42 Start: 35730, Stop: 36053, Start Num: 9  
Candidate Starts for Jobypre\_42:  
(Start: 1 @35625 has 3 MA's), (Start: 2 @35637 has 10 MA's), (Start: 4 @35646 has 39 MA's), (Start: 9 @35730 has 11 MA's), (10, 35748), (11, 35766), (13, 35775), (19, 35892), (25, 36030),

Gene: JoeDirt\_42 Start: 33993, Stop: 34409, Start Num: 4



Candidate Starts for JoeDirt\_42:

(Start: 1 @33972 has 3 MA's), (Start: 4 @33993 has 39 MA's), (8, 34059), (Start: 9 @34080 has 11 MA's), (10, 34098), (15, 34137), (16, 34149), (17, 34206), (20, 34266), (25, 34386),

Gene: Jubie\_42 Start: 35647, Stop: 36054, Start Num: 4

Candidate Starts for Jubie\_42:

(Start: 1 @35626 has 3 MA's), (Start: 2 @35638 has 10 MA's), (Start: 4 @35647 has 39 MA's), (Start: 9 @35731 has 11 MA's), (10, 35749), (11, 35767), (13, 35776), (19, 35893), (25, 36031),

Gene: Kahlid\_45 Start: 35362, Stop: 35778, Start Num: 4

Candidate Starts for Kahlid\_45:

(Start: 2 @35353 has 10 MA's), (Start: 4 @35362 has 39 MA's), (Start: 9 @35449 has 11 MA's), (10, 35467), (13, 35494), (14, 35497), (17, 35572), (18, 35584), (22, 35692), (25, 35755),

Gene: Kingsolomon\_42 Start: 35730, Stop: 36053, Start Num: 9

Candidate Starts for Kingsolomon\_42:

(Start: 1 @35625 has 3 MA's), (Start: 2 @35637 has 10 MA's), (Start: 4 @35646 has 39 MA's), (Start: 9 @35730 has 11 MA's), (10, 35748), (11, 35766), (13, 35775), (19, 35892), (25, 36030),

Gene: KirDoubleO7\_40 Start: 35758, Stop: 36081, Start Num: 9

Candidate Starts for KirDoubleO7\_40:

(Start: 1 @35650 has 3 MA's), (Start: 2 @35662 has 10 MA's), (Start: 4 @35671 has 39 MA's), (5, 35674), (Start: 9 @35758 has 11 MA's), (10, 35776), (11, 35794), (13, 35803), (19, 35920), (25, 36058),

Gene: Krypton555\_42 Start: 35542, Stop: 35970, Start Num: 1

Candidate Starts for Krypton555\_42:

(Start: 1 @35542 has 3 MA's), (Start: 2 @35554 has 10 MA's), (Start: 4 @35563 has 39 MA's), (Start: 9 @35647 has 11 MA's), (10, 35665), (11, 35683), (13, 35692), (19, 35809), (25, 35947),

Gene: LeBron\_43 Start: 34037, Stop: 34453, Start Num: 4

Candidate Starts for LeBron\_43:

(Start: 1 @34016 has 3 MA's), (Start: 4 @34037 has 39 MA's), (8, 34103), (Start: 9 @34124 has 11 MA's), (10, 34142), (15, 34181), (16, 34193), (17, 34250), (20, 34310), (25, 34430),

Gene: Lewan\_45 Start: 35349, Stop: 35765, Start Num: 4

Candidate Starts for Lewan\_45:

(Start: 2 @35340 has 10 MA's), (Start: 4 @35349 has 39 MA's), (Start: 9 @35436 has 11 MA's), (10, 35454), (13, 35481), (14, 35484), (17, 35559), (18, 35571), (22, 35679), (25, 35742),

Gene: LilDestine\_45 Start: 35354, Stop: 35770, Start Num: 4

Candidate Starts for LilDestine\_45:

(Start: 2 @35345 has 10 MA's), (Start: 4 @35354 has 39 MA's), (Start: 9 @35441 has 11 MA's), (10, 35459), (13, 35486), (14, 35489), (17, 35564), (18, 35576), (22, 35684), (25, 35747),

Gene: LiyuLake\_42 Start: 35720, Stop: 36043, Start Num: 9

Candidate Starts for LiyuLake\_42:

(Start: 1 @35612 has 3 MA's), (Start: 2 @35624 has 10 MA's), (Start: 4 @35633 has 39 MA's), (5, 35636), (Start: 9 @35720 has 11 MA's), (10, 35738), (11, 35756), (13, 35765), (19, 35882), (25, 36020),

Gene: Loadrie\_44 Start: 35379, Stop: 35804, Start Num: 2

Candidate Starts for Loadrie\_44:

(Start: 2 @35379 has 10 MA's), (Start: 4 @35388 has 39 MA's), (Start: 9 @35475 has 11 MA's), (10, 35493), (13, 35520), (14, 35523), (17, 35598), (18, 35610), (22, 35718), (25, 35781),

Gene: Lolly9\_42 Start: 35541, Stop: 35864, Start Num: 9

Candidate Starts for Lolly9\_42:

(Start: 1 @35436 has 3 MA's), (Start: 4 @35457 has 39 MA's), (Start: 9 @35541 has 11 MA's), (10, 35559), (11, 35577), (13, 35586), (19, 35703), (25, 35841),

Gene: Lumos\_42 Start: 35643, Stop: 36050, Start Num: 4

Candidate Starts for Lumos\_42:

(Start: 1 @35622 has 3 MA's), (Start: 2 @35634 has 10 MA's), (Start: 4 @35643 has 39 MA's), (Start: 9 @35727 has 11 MA's), (10, 35745), (11, 35763), (13, 35772), (19, 35889), (25, 36027),

Gene: MAckerman\_43 Start: 34117, Stop: 34446, Start Num: 9

Candidate Starts for MAckerman\_43:

(Start: 1 @34009 has 3 MA's), (Start: 4 @34030 has 39 MA's), (8, 34096), (Start: 9 @34117 has 11 MA's), (10, 34135), (15, 34174), (16, 34186), (17, 34243), (20, 34303), (25, 34423),

Gene: Miley16\_45 Start: 35347, Stop: 35772, Start Num: 2

Candidate Starts for Miley16\_45:

(Start: 2 @35347 has 10 MA's), (Start: 4 @35356 has 39 MA's), (Start: 9 @35443 has 11 MA's), (10, 35461), (13, 35488), (14, 35491), (17, 35566), (18, 35578), (22, 35686), (25, 35749),

Gene: MiniLon\_42 Start: 35458, Stop: 35865, Start Num: 4

Candidate Starts for MiniLon\_42:

(Start: 1 @35437 has 3 MA's), (Start: 4 @35458 has 39 MA's), (Start: 9 @35542 has 11 MA's), (10, 35560), (11, 35578), (13, 35587), (19, 35704), (25, 35842),

Gene: MiniMac\_42 Start: 35455, Stop: 35862, Start Num: 4

Candidate Starts for MiniMac\_42:

(Start: 1 @35434 has 3 MA's), (Start: 4 @35455 has 39 MA's), (Start: 9 @35539 has 11 MA's), (10, 35557), (11, 35575), (13, 35584), (19, 35701), (25, 35839),

Gene: MkaliMitinis3\_45 Start: 35358, Stop: 35774, Start Num: 4

Candidate Starts for MkaliMitinis3\_45:

(Start: 2 @35349 has 10 MA's), (Start: 4 @35358 has 39 MA's), (Start: 9 @35445 has 11 MA's), (10, 35463), (13, 35490), (14, 35493), (17, 35568), (18, 35580), (22, 35688), (25, 35751),

Gene: Moostard\_42 Start: 35732, Stop: 36055, Start Num: 9

Candidate Starts for Moostard\_42:

(Start: 1 @35627 has 3 MA's), (Start: 2 @35639 has 10 MA's), (Start: 4 @35648 has 39 MA's), (Start: 9 @35732 has 11 MA's), (10, 35750), (11, 35768), (13, 35777), (19, 35894), (25, 36032),

Gene: MsGreen\_42 Start: 35625, Stop: 36053, Start Num: 1

Candidate Starts for MsGreen\_42:

(Start: 1 @35625 has 3 MA's), (Start: 2 @35637 has 10 MA's), (Start: 4 @35646 has 39 MA's), (Start: 9 @35730 has 11 MA's), (10, 35748), (11, 35766), (13, 35775), (19, 35892), (25, 36030),

Gene: Netyap\_45 Start: 35356, Stop: 35772, Start Num: 4

Candidate Starts for Netyap\_45:

(Start: 2 @35347 has 10 MA's), (Start: 4 @35356 has 39 MA's), (Start: 9 @35443 has 11 MA's), (10, 35461), (13, 35488), (14, 35491), (17, 35566), (18, 35578), (22, 35686), (25, 35749),

Gene: Nicholas\_42 Start: 35730, Stop: 36053, Start Num: 9

Candidate Starts for Nicholas\_42:

(Start: 1 @35625 has 3 MA's), (Start: 2 @35637 has 10 MA's), (Start: 4 @35646 has 39 MA's), (Start: 9 @35730 has 11 MA's), (10, 35748), (11, 35766), (13, 35775), (19, 35892), (25, 36030),

Gene: Nicholasp3\_45 Start: 35348, Stop: 35773, Start Num: 2

Candidate Starts for Nicholasp3\_45:

(Start: 2 @35348 has 10 MA's), (Start: 4 @35357 has 39 MA's), (Start: 9 @35444 has 11 MA's), (10, 35462), (13, 35489), (14, 35492), (17, 35567), (18, 35579), (22, 35687), (25, 35750),

Gene: OhShagHennessy\_42 Start: 33983, Stop: 34399, Start Num: 4

Candidate Starts for OhShagHennessy\_42:

(Start: 1 @33962 has 3 MA's), (Start: 4 @33983 has 39 MA's), (8, 34049), (Start: 9 @34070 has 11 MA's), (10, 34088), (15, 34127), (16, 34139), (17, 34196), (20, 34256), (25, 34376),

Gene: PYPDinur\_41 Start: 34231, Stop: 34560, Start Num: 9

Candidate Starts for PYPDinur\_41:

(Start: 1 @34126 has 3 MA's), (Start: 2 @34138 has 10 MA's), (Start: 3 @34141 has 4 MA's), (Start: 9 @34231 has 11 MA's), (10, 34249), (13, 34276), (14, 34279), (17, 34354), (18, 34366), (22, 34474), (25, 34537), (26, 34552),

Gene: Quby\_43 Start: 34125, Stop: 34448, Start Num: 9

Candidate Starts for Quby\_43:

(Start: 1 @34020 has 3 MA's), (Start: 2 @34032 has 10 MA's), (Start: 3 @34035 has 4 MA's), (6, 34050), (Start: 9 @34125 has 11 MA's), (10, 34143), (13, 34170), (14, 34173), (17, 34251), (21, 34314), (24, 34377), (25, 34425),

Gene: Rose5\_42 Start: 34025, Stop: 34441, Start Num: 4

Candidate Starts for Rose5\_42:

(Start: 1 @34004 has 3 MA's), (Start: 4 @34025 has 39 MA's), (8, 34091), (Start: 9 @34112 has 11 MA's), (10, 34130), (15, 34169), (16, 34181), (17, 34238), (20, 34298), (25, 34418),

Gene: Rumpelstiltskin\_45 Start: 35623, Stop: 36039, Start Num: 4

Candidate Starts for Rumpelstiltskin\_45:

(Start: 2 @35614 has 10 MA's), (Start: 4 @35623 has 39 MA's), (Start: 9 @35710 has 11 MA's), (10, 35728), (13, 35755), (14, 35758), (17, 35833), (18, 35845), (22, 35953), (24, 35968), (25, 36016),

Gene: Samty\_42 Start: 35731, Stop: 36054, Start Num: 9

Candidate Starts for Samty\_42:

(Start: 1 @35626 has 3 MA's), (Start: 2 @35638 has 10 MA's), (Start: 4 @35647 has 39 MA's), (Start: 9 @35731 has 11 MA's), (10, 35749), (11, 35767), (13, 35776), (19, 35893), (25, 36031),

Gene: Sarshaun\_45 Start: 35477, Stop: 35806, Start Num: 9

Candidate Starts for Sarshaun\_45:

(Start: 2 @35381 has 10 MA's), (Start: 4 @35390 has 39 MA's), (Start: 9 @35477 has 11 MA's), (10, 35495), (13, 35522), (14, 35525), (17, 35600), (18, 35612), (22, 35720), (25, 35783),

Gene: Sheng711\_43 Start: 34231, Stop: 34560, Start Num: 9

Candidate Starts for Sheng711\_43:

(Start: 1 @34126 has 3 MA's), (Start: 2 @34138 has 10 MA's), (Start: 3 @34141 has 4 MA's), (Start: 9 @34231 has 11 MA's), (10, 34249), (13, 34276), (14, 34279), (17, 34354), (18, 34366), (22, 34474), (25, 34537), (26, 34552),

Gene: Silverleaf\_42 Start: 34025, Stop: 34441, Start Num: 4

Candidate Starts for Silverleaf\_42:

(Start: 1 @34004 has 3 MA's), (Start: 4 @34025 has 39 MA's), (8, 34091), (Start: 9 @34112 has 11 MA's), (10, 34130), (15, 34169), (16, 34181), (17, 34238), (20, 34298), (25, 34418),

Gene: Snenia\_42 Start: 35731, Stop: 36054, Start Num: 9

Candidate Starts for Snenia\_42:

(Start: 1 @35626 has 3 MA's), (Start: 2 @35638 has 10 MA's), (Start: 4 @35647 has 39 MA's), (Start: 9 @35731 has 11 MA's), (10, 35749), (11, 35767), (13, 35776), (19, 35893), (25, 36031),

Gene: Soap141\_45 Start: 35477, Stop: 35806, Start Num: 9

Candidate Starts for Soap141\_45:

(Start: 2 @35381 has 10 MA's), (Start: 4 @35390 has 39 MA's), (Start: 9 @35477 has 11 MA's), (10, 35495), (13, 35522), (14, 35525), (17, 35600), (18, 35612), (22, 35720), (25, 35783),

Gene: Tourach\_44 Start: 35371, Stop: 35784, Start Num: 4

Candidate Starts for Tourach\_44:

(Start: 2 @35362 has 10 MA's), (Start: 4 @35371 has 39 MA's), (Start: 9 @35458 has 11 MA's), (10, 35476), (13, 35503), (14, 35506), (17, 35581), (25, 35761),

Gene: Tyson\_42 Start: 34026, Stop: 34442, Start Num: 4

Candidate Starts for Tyson\_42:

(Start: 1 @34005 has 3 MA's), (Start: 4 @34026 has 39 MA's), (8, 34092), (Start: 9 @34113 has 11 MA's), (10, 34131), (15, 34170), (16, 34182), (17, 34239), (20, 34299), (23, 34365), (25, 34419),

Gene: UPIE\_43 Start: 34009, Stop: 34425, Start Num: 4

Candidate Starts for UPIE\_43:

(Start: 1 @33988 has 3 MA's), (Start: 4 @34009 has 39 MA's), (8, 34075), (Start: 9 @34096 has 11 MA's), (10, 34114), (15, 34153), (16, 34165), (17, 34222), (20, 34282), (25, 34402),

Gene: Vetrrix\_45 Start: 35363, Stop: 35779, Start Num: 4

Candidate Starts for Vetrrix\_45:

(Start: 2 @35354 has 10 MA's), (Start: 4 @35363 has 39 MA's), (Start: 9 @35450 has 11 MA's), (10, 35468), (13, 35495), (14, 35498), (17, 35573), (18, 35585), (22, 35693), (25, 35756),

Gene: Wamburgrxpress\_43 Start: 34024, Stop: 34440, Start Num: 4

Candidate Starts for Wamburgrxpress\_43:

(Start: 1 @34003 has 3 MA's), (Start: 4 @34024 has 39 MA's), (8, 34090), (Start: 9 @34111 has 11 MA's), (10, 34129), (15, 34168), (16, 34180), (17, 34237), (20, 34297), (25, 34417),

Gene: Whirlwind\_43 Start: 35405, Stop: 35812, Start Num: 4

Candidate Starts for Whirlwind\_43:

(Start: 1 @35384 has 3 MA's), (Start: 2 @35396 has 10 MA's), (Start: 4 @35405 has 39 MA's), (Start: 9 @35489 has 11 MA's), (10, 35507), (11, 35525), (13, 35534), (19, 35651), (25, 35789),

Gene: Wigglewigggle\_45 Start: 35380, Stop: 35805, Start Num: 2

Candidate Starts for Wigglewigggle\_45:

(Start: 2 @35380 has 10 MA's), (Start: 4 @35389 has 39 MA's), (Start: 9 @35476 has 11 MA's), (10, 35494), (13, 35521), (14, 35524), (17, 35599), (18, 35611), (22, 35719), (25, 35782),

Gene: Wilder\_45 Start: 35362, Stop: 35778, Start Num: 4

Candidate Starts for Wilder\_45:

(Start: 2 @35353 has 10 MA's), (Start: 4 @35362 has 39 MA's), (Start: 9 @35449 has 11 MA's), (10, 35467), (13, 35494), (14, 35497), (17, 35572), (18, 35584), (22, 35692), (25, 35755),

Gene: Winky\_45 Start: 35347, Stop: 35772, Start Num: 2

Candidate Starts for Winky\_45:

(Start: 2 @35347 has 10 MA's), (Start: 4 @35356 has 39 MA's), (Start: 9 @35443 has 11 MA's), (10, 35461), (13, 35488), (14, 35491), (17, 35566), (18, 35578), (22, 35686), (25, 35749),

Gene: Wyatt2\_43 Start: 34025, Stop: 34441, Start Num: 4

Candidate Starts for Wyatt2\_43:

(Start: 1 @34004 has 3 MA's), (Start: 4 @34025 has 39 MA's), (8, 34091), (Start: 9 @34112 has 11 MA's), (10, 34130), (15, 34169), (16, 34181), (17, 34238), (20, 34298), (25, 34418),

Gene: Zakai\_45 Start: 35614, Stop: 36030, Start Num: 4

Candidate Starts for Zakai\_45:

(Start: 2 @35605 has 10 MA's), (Start: 4 @35614 has 39 MA's), (Start: 9 @35701 has 11 MA's), (10, 35719), (13, 35746), (14, 35749), (17, 35824), (18, 35836), (22, 35944), (25, 36007),

Gene: Zaria\_43 Start: 34040, Stop: 34456, Start Num: 4

Candidate Starts for Zaria\_43:

(Start: 1 @34019 has 3 MA's), (Start: 4 @34040 has 39 MA's), (8, 34106), (Start: 9 @34127 has 11 MA's), (10, 34145), (15, 34184), (16, 34196), (17, 34253), (20, 34313), (25, 34433),

Gene: ZhongYanYuan\_43 Start: 35304, Stop: 35633, Start Num: 9

Candidate Starts for ZhongYanYuan\_43:

(Start: 2 @35208 has 10 MA's), (Start: 4 @35217 has 39 MA's), (Start: 9 @35304 has 11 MA's), (10, 35322), (13, 35349), (14, 35352), (17, 35430), (22, 35547), (25, 35610),