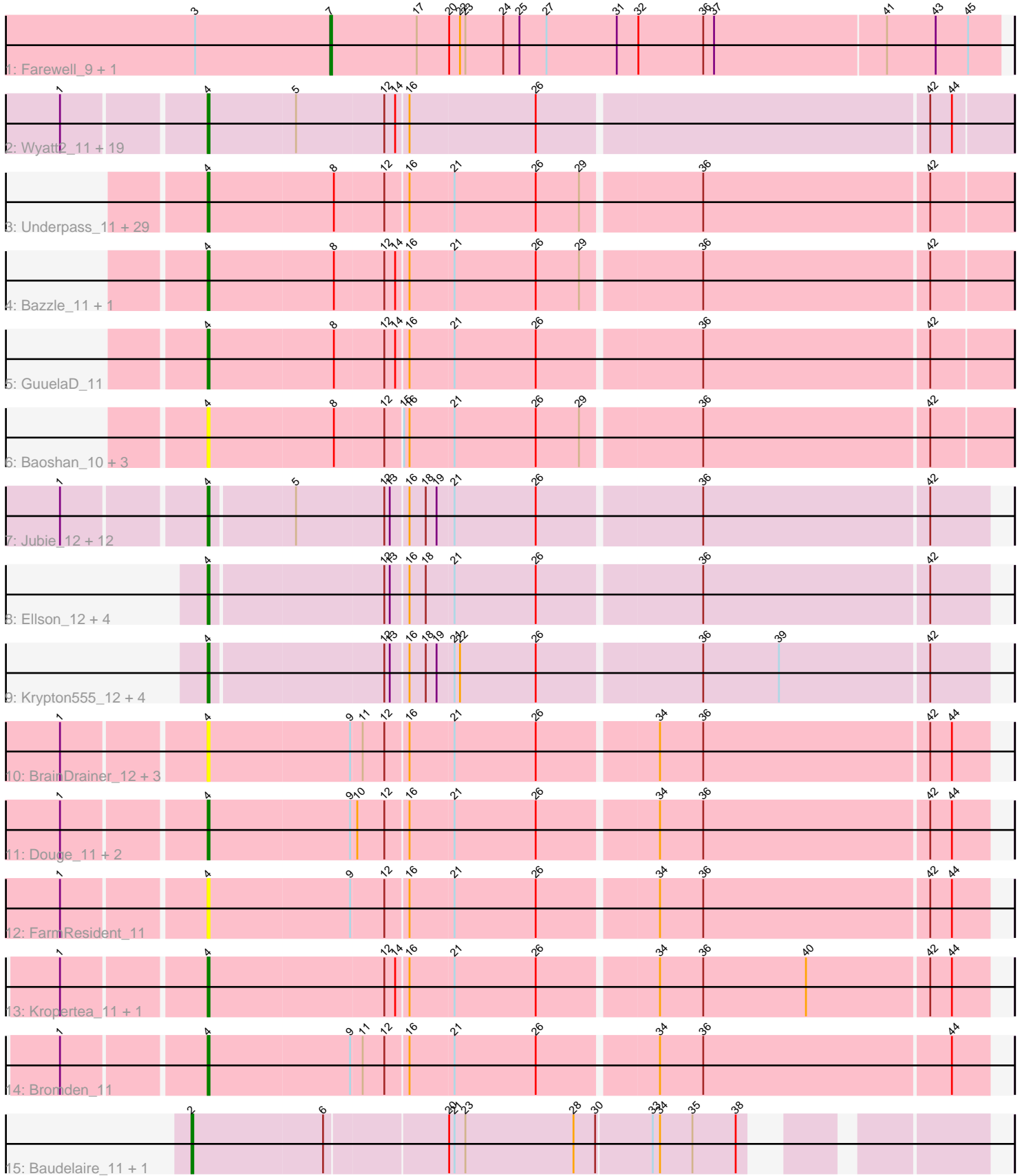


Pham 202838



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 202838 Report

This analysis was run 01/18/25 on database version 583.

Pham number 202838 has 95 members, 24 are drafts.

Phages represented in each track:

- Track 1 : Farewell\_9, Sparky\_9
- Track 2 : Wyatt2\_11, Zaria\_11, Silverleaf\_11, Appletree2\_11, AvadaKedavra\_11, Acquire49\_11, Tyson\_11, LeBron\_11, UPIE\_11, CicholasNage\_11, Rose5\_11, Halena\_11, Enceladus\_11, MAckerman\_11, JoeDirt\_11, Poochiewood\_11, DirkDirk\_11, OhShagHennessy\_11, Wamburgrxpress\_11, Calm\_11
- Track 3 : Underpass\_11, BigCheese\_11, DanBing\_10, Loadrie\_11, LilDestine\_11, MkaliMitinis3\_11, Faith1\_11, Miley16\_11, DrSeegs\_11, Lewan\_11, Sarshaun\_11, Wigglewiggles\_11, Kahlid\_11, Gabriela\_11, Zakai\_11, Hafay\_11, Tourach\_11, Vatrix\_11, Soap141\_11, Nicholasp3\_11, Crossroads\_11, Itos\_11, Winky\_11, Breezona\_11, Finemlucis\_11, BobsGarage\_11, Rumpelstiltskin\_11, Gardann\_11, Wilder\_11, Netyap\_11
- Track 4 : Bazzle\_11, Archie\_11
- Track 5 : GuuelaD\_11
- Track 6 : Baoshan\_10, DHan\_11, Claus\_11, ZhongYanYuan\_10
- Track 7 : Jubie\_12, Kingsolomon\_12, TriFive\_12, Finnry\_12, Nicholas\_12, Snenia\_12, Moostard\_12, MsGreen\_12, Jobypre\_12, Samty\_12, Bellis\_12, Clautastrophe\_12, Lumos\_12
- Track 8 : Ellson\_12, KirDoubleO7\_10, BourbonZero\_11, DuncansLeg\_12, LiyuLake\_12
- Track 9 : Krypton555\_12, MiniMac\_12, Whirlwind\_13, Lolly9\_12, MiniLon\_12
- Track 10 : BrainDrainer\_12, Douzhi\_11, Sheng711\_11, PYPDinur\_11
- Track 11 : Douge\_11, Chaser\_11, Quby\_11
- Track 12 : FarmResident\_11
- Track 13 : Kropertea\_11, DyoEdafos\_12
- Track 14 : Bromden\_11
- Track 15 : Baudelaire\_11, Aegeus\_11

### ***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 67 of the 71 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Acquire49\_11, Appletree2\_11, Archie\_11, AvadaKedavra\_11, Baoshan\_10, Bazzle\_11, Bellis\_12, BigCheese\_11, BobsGarage\_11, BourbonZero\_11, BrainDrainer\_12, Breezona\_11, Bromden\_11, Calm\_11, Chaser\_11, CicholasNage\_11, Claus\_11, Clautastrophe\_12, Crossroads\_11, DHan\_11, DanBing\_10, DirkDirk\_11, Douge\_11, Douzhi\_11, DrSeegs\_11, DuncansLeg\_12, DyoEdafos\_12, Ellson\_12, Enceladus\_11, Faith1\_11, FarmResident\_11, Finemlucis\_11, Finnry\_12, Gabriela\_11, Gardann\_11, GuuelaD\_11, Hafay\_11, Halena\_11, Itos\_11, Jobypre\_12, JoeDirt\_11, Jubie\_12, Kahlid\_11, Kingsolomon\_12, KirDoubleO7\_10, Kropertea\_11, Krypton555\_12, LeBron\_11, Lewan\_11, LilDestine\_11, LiyuLake\_12, Loadrie\_11, Lolly9\_12, Lumos\_12, MAckerman\_11, Miley16\_11, MiniLon\_12, MiniMac\_12, MkaliMitinis3\_11, Moostard\_12, MsGreen\_12, Netyap\_11, Nicholas\_12, Nicholasp3\_11, OhShagHennessy\_11, PYPDinur\_11, Poochiewood\_11, Quby\_11, Rose5\_11, Rumpelstiltskin\_11, Samty\_12, Sarshaun\_11, Sheng711\_11, Silverleaf\_11, Snenia\_12, Soap141\_11, Tourach\_11, TriFive\_12, Tyson\_11, UPIE\_11, Underpass\_11, Vetrix\_11, Wamburgxpress\_11, Whirlwind\_13, Wigglewiggles\_11, Wilder\_11, Winky\_11, Wyatt2\_11, Zakai\_11, Zaria\_11, ZhongYanYuan\_10,

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

- 

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

- Aegeus\_11, Baudelaire\_11, Farewell\_9, Sparky\_9,

### Summary by start number:

Start 2:

- Found in 2 of 95 ( 2.1% ) of genes in pham
- Manual Annotations of this start: 2 of 71
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aegeus\_11 (L5), Baudelaire\_11 (L5),

Start 4:

- Found in 91 of 95 ( 95.8% ) of genes in pham
- Manual Annotations of this start: 67 of 71
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Acquire49\_11 (L1), Appletree2\_11 (L1), Archie\_11 (L2), AvadaKedavra\_11 (L1), Baoshan\_10 (L2), Bazzle\_11 (L2), Bellis\_12 (L3), BigCheese\_11 (L2), BobsGarage\_11 (L2), BourbonZero\_11 (L3), BrainDrainer\_12 (L4), Breezona\_11 (L2), Bromden\_11 (L4), Calm\_11 (L1), Chaser\_11 (L4), CicholasNage\_11 (L1), Claus\_11 (L2), Clautastrophe\_12 (L3), Crossroads\_11 (L2), DHan\_11 (L2), DanBing\_10 (L2), DirkDirk\_11 (L1), Douge\_11 (L4), Douzhi\_11 (L4), DrSeegs\_11 (L2), DuncansLeg\_12 (L3), DyoEdafos\_12 (L4), Ellson\_12 (L3), Enceladus\_11 (L1), Faith1\_11 (L2), FarmResident\_11 (L4), Finemlucis\_11 (L2), Finnry\_12 (L3), Gabriela\_11 (L2), Gardann\_11 (L2), GuuelaD\_11 (L2), Hafay\_11 (L2), Halena\_11 (L1), Itos\_11 (L2), Jobypre\_12 (L3), JoeDirt\_11 (L1), Jubie\_12 (L3), Kahlid\_11 (L2), Kingsolomon\_12 (L3), KirDoubleO7\_10 (L3), Kropertea\_11 (L4), Krypton555\_12 (L3), LeBron\_11 (L1), Lewan\_11 (L2), LilDestine\_11 (L2), LiyuLake\_12 (L3), Loadrie\_11 (L2), Lolly9\_12 (L3), Lumos\_12 (L3), MAckerman\_11 (L1), Miley16\_11 (L2), MiniLon\_12 (L3), MiniMac\_12 (L3), MkaliMitinis3\_11 (L2), Moostard\_12 (L3), MsGreen\_12 (L3), Netyap\_11 (L2), Nicholas\_12 (L3), Nicholasp3\_11 (L2), OhShagHennessy\_11 (L1), PYPDinur\_11 (L4), Poochiewood\_11 (L1), Quby\_11 (L4), Rose5\_11 (L1), Rumpelstiltskin\_11 (L2),

Samty\_12 (L3), Sarshaun\_11 (L2), Sheng711\_11 (L4), Silverleaf\_11 (L1), Snenia\_12 (L3), Soap141\_11 (L2), Tourach\_11 (L2), TriFive\_12 (L3), Tyson\_11 (L1), UPIE\_11 (L1), Underpass\_11 (L2), Vetric\_11 (L2), Wamburgexpress\_11 (L1), Whirlwind\_13 (L3), Wigglewiggles\_11 (L2), Wilder\_11 (L2), Winky\_11 (L2), Wyatt2\_11 (L1), Zakai\_11 (L2), Zaria\_11 (L1), ZhongYanYuan\_10 (L2),

Start 7:

- Found in 2 of 95 ( 2.1% ) of genes in pham
- Manual Annotations of this start: 2 of 71
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Farewell\_9 (AF), Sparky\_9 (AF),

### **Summary by clusters:**

There are 6 clusters represented in this pham: AF, L4, L5, L2, L3, L1,

Info for manual annotations of cluster AF:

- Start number 7 was manually annotated 2 times for cluster AF.

Info for manual annotations of cluster L1:

- Start number 4 was manually annotated 19 times for cluster L1.

Info for manual annotations of cluster L2:

- Start number 4 was manually annotated 28 times for cluster L2.

Info for manual annotations of cluster L3:

- Start number 4 was manually annotated 16 times for cluster L3.

Info for manual annotations of cluster L4:

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

Info for manual annotations of cluster L5:

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

### **Gene Information:**

Gene: Acquire49\_11 Start: 8033, Stop: 8464, Start Num: 4

Candidate Starts for Acquire49\_11:

(1, 7958), (Start: 4 @8033 has 67 MA's), (5, 8081), (12, 8129), (14, 8135), (16, 8141), (26, 8210), (42, 8420), (44, 8432),

Gene: Aegeus\_11 Start: 7688, Stop: 8083, Start Num: 2

Candidate Starts for Aegeus\_11:

(Start: 2 @7688 has 2 MA's), (6, 7760), (20, 7823), (21, 7826), (23, 7832), (28, 7892), (30, 7904), (33, 7934), (34, 7937), (35, 7955), (38, 7979),

Gene: Appletree2\_11 Start: 8007, Stop: 8438, Start Num: 4

Candidate Starts for Appletree2\_11:

(1, 7932), (Start: 4 @8007 has 67 MA's), (5, 8055), (12, 8103), (14, 8109), (16, 8115), (26, 8184), (42, 8394), (44, 8406),

Gene: Archie\_11 Start: 8003, Stop: 8434, Start Num: 4

Candidate Starts for Archie\_11:

(Start: 4 @8003 has 67 MA's), (8, 8072), (12, 8099), (14, 8105), (16, 8111), (21, 8135), (26, 8180), (29, 8204), (36, 8267), (42, 8390),

Gene: AvadaKedavra\_11 Start: 8033, Stop: 8464, Start Num: 4

Candidate Starts for AvadaKedavra\_11:

(1, 7958), (Start: 4 @8033 has 67 MA's), (5, 8081), (12, 8129), (14, 8135), (16, 8141), (26, 8210), (42, 8420), (44, 8432),

Gene: Baoshan\_10 Start: 7858, Stop: 8289, Start Num: 4

Candidate Starts for Baoshan\_10:

(Start: 4 @7858 has 67 MA's), (8, 7927), (12, 7954), (15, 7963), (16, 7966), (21, 7990), (26, 8035), (29, 8059), (36, 8122), (42, 8245),

Gene: Baudelaire\_11 Start: 7688, Stop: 8083, Start Num: 2

Candidate Starts for Baudelaire\_11:

(Start: 2 @7688 has 2 MA's), (6, 7760), (20, 7823), (21, 7826), (23, 7832), (28, 7892), (30, 7904), (33, 7934), (34, 7937), (35, 7955), (38, 7979),

Gene: Bazzle\_11 Start: 7979, Stop: 8410, Start Num: 4

Candidate Starts for Bazzle\_11:

(Start: 4 @7979 has 67 MA's), (8, 8048), (12, 8075), (14, 8081), (16, 8087), (21, 8111), (26, 8156), (29, 8180), (36, 8243), (42, 8366),

Gene: Bellis\_12 Start: 8178, Stop: 8594, Start Num: 4

Candidate Starts for Bellis\_12:

(1, 8103), (Start: 4 @8178 has 67 MA's), (5, 8223), (12, 8271), (13, 8274), (16, 8283), (18, 8292), (19, 8298), (21, 8307), (26, 8352), (36, 8439), (42, 8562),

Gene: BigCheese\_11 Start: 8030, Stop: 8461, Start Num: 4

Candidate Starts for BigCheese\_11:

(Start: 4 @8030 has 67 MA's), (8, 8099), (12, 8126), (16, 8138), (21, 8162), (26, 8207), (29, 8231), (36, 8294), (42, 8417),

Gene: BobsGarage\_11 Start: 8030, Stop: 8461, Start Num: 4

Candidate Starts for BobsGarage\_11:

(Start: 4 @8030 has 67 MA's), (8, 8099), (12, 8126), (16, 8138), (21, 8162), (26, 8207), (29, 8231), (36, 8294), (42, 8417),

Gene: BourbonZero\_11 Start: 8184, Stop: 8600, Start Num: 4

Candidate Starts for BourbonZero\_11:

(Start: 4 @8184 has 67 MA's), (12, 8277), (13, 8280), (16, 8289), (18, 8298), (21, 8313), (26, 8358), (36, 8445), (42, 8568),

Gene: BrainDrainer\_12 Start: 7849, Stop: 8268, Start Num: 4

Candidate Starts for BrainDrainer\_12:

(1, 7774), (Start: 4 @7849 has 67 MA's), (9, 7927), (11, 7933), (12, 7945), (16, 7957), (21, 7981), (26, 8026), (34, 8089), (36, 8113), (42, 8236), (44, 8248),

Gene: Breezona\_11 Start: 8030, Stop: 8461, Start Num: 4

Candidate Starts for Breezona\_11:

(Start: 4 @8030 has 67 MA's), (8, 8099), (12, 8126), (16, 8138), (21, 8162), (26, 8207), (29, 8231), (36, 8294), (42, 8417),

Gene: Bromden\_11 Start: 7759, Stop: 8178, Start Num: 4

Candidate Starts for Bromden\_11:

(1, 7684), (Start: 4 @7759 has 67 MA's), (9, 7837), (11, 7843), (12, 7855), (16, 7867), (21, 7891), (26, 7936), (34, 7999), (36, 8023), (44, 8158),

Gene: Calm\_11 Start: 8034, Stop: 8465, Start Num: 4

Candidate Starts for Calm\_11:

(1, 7959), (Start: 4 @8034 has 67 MA's), (5, 8082), (12, 8130), (14, 8136), (16, 8142), (26, 8211), (42, 8421), (44, 8433),

Gene: Chaser\_11 Start: 7764, Stop: 8183, Start Num: 4

Candidate Starts for Chaser\_11:

(1, 7689), (Start: 4 @7764 has 67 MA's), (9, 7842), (10, 7845), (12, 7860), (16, 7872), (21, 7896), (26, 7941), (34, 8004), (36, 8028), (42, 8151), (44, 8163),

Gene: CicholasNage\_11 Start: 8034, Stop: 8465, Start Num: 4

Candidate Starts for CicholasNage\_11:

(1, 7959), (Start: 4 @8034 has 67 MA's), (5, 8082), (12, 8130), (14, 8136), (16, 8142), (26, 8211), (42, 8421), (44, 8433),

Gene: Claus\_11 Start: 8038, Stop: 8469, Start Num: 4

Candidate Starts for Claus\_11:

(Start: 4 @8038 has 67 MA's), (8, 8107), (12, 8134), (15, 8143), (16, 8146), (21, 8170), (26, 8215), (29, 8239), (36, 8302), (42, 8425),

Gene: Clautastrophe\_12 Start: 8182, Stop: 8598, Start Num: 4

Candidate Starts for Clautastrophe\_12:

(1, 8107), (Start: 4 @8182 has 67 MA's), (5, 8227), (12, 8275), (13, 8278), (16, 8287), (18, 8296), (19, 8302), (21, 8311), (26, 8356), (36, 8443), (42, 8566),

Gene: Crossroads\_11 Start: 8030, Stop: 8461, Start Num: 4

Candidate Starts for Crossroads\_11:

(Start: 4 @8030 has 67 MA's), (8, 8099), (12, 8126), (16, 8138), (21, 8162), (26, 8207), (29, 8231), (36, 8294), (42, 8417),

Gene: DHan\_11 Start: 7974, Stop: 8405, Start Num: 4

Candidate Starts for DHan\_11:

(Start: 4 @7974 has 67 MA's), (8, 8043), (12, 8070), (15, 8079), (16, 8082), (21, 8106), (26, 8151), (29, 8175), (36, 8238), (42, 8361),

Gene: DanBing\_10 Start: 7857, Stop: 8288, Start Num: 4

Candidate Starts for DanBing\_10:

(Start: 4 @7857 has 67 MA's), (8, 7926), (12, 7953), (16, 7965), (21, 7989), (26, 8034), (29, 8058), (36, 8121), (42, 8244),

Gene: DirkDirk\_11 Start: 8035, Stop: 8466, Start Num: 4

Candidate Starts for DirkDirk\_11:

(1, 7960), (Start: 4 @8035 has 67 MA's), (5, 8083), (12, 8131), (14, 8137), (16, 8143), (26, 8212), (42, 8422), (44, 8434),

Gene: Douge\_11 Start: 7710, Stop: 8129, Start Num: 4

Candidate Starts for Douge\_11:

(1, 7635), (Start: 4 @7710 has 67 MA's), (9, 7788), (10, 7791), (12, 7806), (16, 7818), (21, 7842), (26, 7887), (34, 7950), (36, 7974), (42, 8097), (44, 8109),

Gene: Douzhi\_11 Start: 7710, Stop: 8129, Start Num: 4

Candidate Starts for Douzhi\_11:

(1, 7635), (Start: 4 @7710 has 67 MA's), (9, 7788), (11, 7794), (12, 7806), (16, 7818), (21, 7842), (26, 7887), (34, 7950), (36, 7974), (42, 8097), (44, 8109),

Gene: DrSeegs\_11 Start: 8030, Stop: 8461, Start Num: 4

Candidate Starts for DrSeegs\_11:

(Start: 4 @8030 has 67 MA's), (8, 8099), (12, 8126), (16, 8138), (21, 8162), (26, 8207), (29, 8231), (36, 8294), (42, 8417),

Gene: DuncansLeg\_12 Start: 8186, Stop: 8602, Start Num: 4

Candidate Starts for DuncansLeg\_12:

(Start: 4 @8186 has 67 MA's), (12, 8279), (13, 8282), (16, 8291), (18, 8300), (21, 8315), (26, 8360), (36, 8447), (42, 8570),

Gene: DyoEdafos\_12 Start: 7920, Stop: 8339, Start Num: 4

Candidate Starts for DyoEdafos\_12:

(1, 7845), (Start: 4 @7920 has 67 MA's), (12, 8016), (14, 8022), (16, 8028), (21, 8052), (26, 8097), (34, 8160), (36, 8184), (40, 8241), (42, 8307), (44, 8319),

Gene: Ellson\_12 Start: 8194, Stop: 8610, Start Num: 4

Candidate Starts for Ellson\_12:

(Start: 4 @8194 has 67 MA's), (12, 8287), (13, 8290), (16, 8299), (18, 8308), (21, 8323), (26, 8368), (36, 8455), (42, 8578),

Gene: Enceladus\_11 Start: 8035, Stop: 8466, Start Num: 4

Candidate Starts for Enceladus\_11:

(1, 7960), (Start: 4 @8035 has 67 MA's), (5, 8083), (12, 8131), (14, 8137), (16, 8143), (26, 8212), (42, 8422), (44, 8434),

Gene: Faith1\_11 Start: 8030, Stop: 8461, Start Num: 4

Candidate Starts for Faith1\_11:

(Start: 4 @8030 has 67 MA's), (8, 8099), (12, 8126), (16, 8138), (21, 8162), (26, 8207), (29, 8231), (36, 8294), (42, 8417),

Gene: Farewell\_9 Start: 7127, Stop: 7495, Start Num: 7

Candidate Starts for Farewell\_9:

(3, 7052), (Start: 7 @7127 has 2 MA's), (17, 7175), (20, 7193), (22, 7199), (23, 7202), (24, 7223), (25, 7232), (27, 7247), (31, 7286), (32, 7298), (36, 7334), (37, 7340), (41, 7433), (43, 7460), (45, 7478),

Gene: FarmResident\_11 Start: 7755, Stop: 8174, Start Num: 4

Candidate Starts for FarmResident\_11:

(1, 7680), (Start: 4 @7755 has 67 MA's), (9, 7833), (12, 7851), (16, 7863), (21, 7887), (26, 7932), (34, 7995), (36, 8019), (42, 8142), (44, 8154),

Gene: Finemlucis\_11 Start: 8030, Stop: 8461, Start Num: 4

Candidate Starts for Finemlucis\_11:

(Start: 4 @8030 has 67 MA's), (8, 8099), (12, 8126), (16, 8138), (21, 8162), (26, 8207), (29, 8231), (36, 8294), (42, 8417),

Gene: Finnry\_12 Start: 8179, Stop: 8595, Start Num: 4

Candidate Starts for Finnry\_12:

(1, 8104), (Start: 4 @8179 has 67 MA's), (5, 8224), (12, 8272), (13, 8275), (16, 8284), (18, 8293), (19, 8299), (21, 8308), (26, 8353), (36, 8440), (42, 8563),

Gene: Gabriela\_11 Start: 8030, Stop: 8461, Start Num: 4

Candidate Starts for Gabriela\_11:

(Start: 4 @8030 has 67 MA's), (8, 8099), (12, 8126), (16, 8138), (21, 8162), (26, 8207), (29, 8231), (36, 8294), (42, 8417),

Gene: Gardann\_11 Start: 8030, Stop: 8461, Start Num: 4

Candidate Starts for Gardann\_11:

(Start: 4 @8030 has 67 MA's), (8, 8099), (12, 8126), (16, 8138), (21, 8162), (26, 8207), (29, 8231), (36, 8294), (42, 8417),

Gene: GuuelaD\_11 Start: 8063, Stop: 8494, Start Num: 4

Candidate Starts for GuuelaD\_11:

(Start: 4 @8063 has 67 MA's), (8, 8132), (12, 8159), (14, 8165), (16, 8171), (21, 8195), (26, 8240), (36, 8327), (42, 8450),

Gene: Hafay\_11 Start: 8063, Stop: 8494, Start Num: 4

Candidate Starts for Hafay\_11:

(Start: 4 @8063 has 67 MA's), (8, 8132), (12, 8159), (16, 8171), (21, 8195), (26, 8240), (29, 8264), (36, 8327), (42, 8450),

Gene: Halena\_11 Start: 8034, Stop: 8465, Start Num: 4

Candidate Starts for Halena\_11:

(1, 7959), (Start: 4 @8034 has 67 MA's), (5, 8082), (12, 8130), (14, 8136), (16, 8142), (26, 8211), (42, 8421), (44, 8433),

Gene: Itos\_11 Start: 8030, Stop: 8461, Start Num: 4

Candidate Starts for Itos\_11:

(Start: 4 @8030 has 67 MA's), (8, 8099), (12, 8126), (16, 8138), (21, 8162), (26, 8207), (29, 8231), (36, 8294), (42, 8417),

Gene: Jobypre\_12 Start: 8182, Stop: 8598, Start Num: 4

Candidate Starts for Jobypre\_12:

(1, 8107), (Start: 4 @8182 has 67 MA's), (5, 8227), (12, 8275), (13, 8278), (16, 8287), (18, 8296), (19, 8302), (21, 8311), (26, 8356), (36, 8443), (42, 8566),

Gene: JoeDirt\_11 Start: 8034, Stop: 8465, Start Num: 4

Candidate Starts for JoeDirt\_11:

(1, 7959), (Start: 4 @8034 has 67 MA's), (5, 8082), (12, 8130), (14, 8136), (16, 8142), (26, 8211), (42, 8421), (44, 8433),

Gene: Jubie\_12 Start: 8182, Stop: 8598, Start Num: 4

Candidate Starts for Jubie\_12:

(1, 8107), (Start: 4 @8182 has 67 MA's), (5, 8227), (12, 8275), (13, 8278), (16, 8287), (18, 8296), (19, 8302), (21, 8311), (26, 8356), (36, 8443), (42, 8566),



Gene: Kahlid\_11 Start: 8030, Stop: 8461, Start Num: 4

Candidate Starts for Kahlid\_11:

(Start: 4 @8030 has 67 MA's), (8, 8099), (12, 8126), (16, 8138), (21, 8162), (26, 8207), (29, 8231), (36, 8294), (42, 8417),

Gene: Kingsolomon\_12 Start: 8182, Stop: 8598, Start Num: 4

Candidate Starts for Kingsolomon\_12:

(1, 8107), (Start: 4 @8182 has 67 MA's), (5, 8227), (12, 8275), (13, 8278), (16, 8287), (18, 8296), (19, 8302), (21, 8311), (26, 8356), (36, 8443), (42, 8566),

Gene: KirDoubleO7\_10 Start: 8195, Stop: 8611, Start Num: 4

Candidate Starts for KirDoubleO7\_10:

(Start: 4 @8195 has 67 MA's), (12, 8288), (13, 8291), (16, 8300), (18, 8309), (21, 8324), (26, 8369), (36, 8456), (42, 8579),

Gene: Kropertea\_11 Start: 7726, Stop: 8145, Start Num: 4

Candidate Starts for Kropertea\_11:

(1, 7651), (Start: 4 @7726 has 67 MA's), (12, 7822), (14, 7828), (16, 7834), (21, 7858), (26, 7903), (34, 7966), (36, 7990), (40, 8047), (42, 8113), (44, 8125),

Gene: Krypton555\_12 Start: 8171, Stop: 8587, Start Num: 4

Candidate Starts for Krypton555\_12:

(Start: 4 @8171 has 67 MA's), (12, 8264), (13, 8267), (16, 8276), (18, 8285), (19, 8291), (21, 8300), (22, 8303), (26, 8345), (36, 8432), (39, 8474), (42, 8555),

Gene: LeBron\_11 Start: 8034, Stop: 8465, Start Num: 4

Candidate Starts for LeBron\_11:

(1, 7959), (Start: 4 @8034 has 67 MA's), (5, 8082), (12, 8130), (14, 8136), (16, 8142), (26, 8211), (42, 8421), (44, 8433),

Gene: Lewan\_11 Start: 8030, Stop: 8461, Start Num: 4

Candidate Starts for Lewan\_11:

(Start: 4 @8030 has 67 MA's), (8, 8099), (12, 8126), (16, 8138), (21, 8162), (26, 8207), (29, 8231), (36, 8294), (42, 8417),

Gene: LilDestine\_11 Start: 8030, Stop: 8461, Start Num: 4

Candidate Starts for LilDestine\_11:

(Start: 4 @8030 has 67 MA's), (8, 8099), (12, 8126), (16, 8138), (21, 8162), (26, 8207), (29, 8231), (36, 8294), (42, 8417),

Gene: LiyuLake\_12 Start: 8186, Stop: 8602, Start Num: 4

Candidate Starts for LiyuLake\_12:

(Start: 4 @8186 has 67 MA's), (12, 8279), (13, 8282), (16, 8291), (18, 8300), (21, 8315), (26, 8360), (36, 8447), (42, 8570),

Gene: Loadrie\_11 Start: 8063, Stop: 8494, Start Num: 4

Candidate Starts for Loadrie\_11:

(Start: 4 @8063 has 67 MA's), (8, 8132), (12, 8159), (16, 8171), (21, 8195), (26, 8240), (29, 8264), (36, 8327), (42, 8450),

Gene: Lolly9\_12 Start: 8189, Stop: 8605, Start Num: 4

Candidate Starts for Lolly9\_12:

(Start: 4 @8189 has 67 MA's), (12, 8282), (13, 8285), (16, 8294), (18, 8303), (19, 8309), (21, 8318), (22, 8321), (26, 8363), (36, 8450), (39, 8492), (42, 8573),

Gene: Lumos\_12 Start: 8182, Stop: 8598, Start Num: 4

Candidate Starts for Lumos\_12:

(1, 8107), (Start: 4 @8182 has 67 MA's), (5, 8227), (12, 8275), (13, 8278), (16, 8287), (18, 8296), (19, 8302), (21, 8311), (26, 8356), (36, 8443), (42, 8566),

Gene: MAckerman\_11 Start: 8033, Stop: 8464, Start Num: 4

Candidate Starts for MAckerman\_11:

(1, 7958), (Start: 4 @8033 has 67 MA's), (5, 8081), (12, 8129), (14, 8135), (16, 8141), (26, 8210), (42, 8420), (44, 8432),

Gene: Miley16\_11 Start: 8030, Stop: 8461, Start Num: 4

Candidate Starts for Miley16\_11:

(Start: 4 @8030 has 67 MA's), (8, 8099), (12, 8126), (16, 8138), (21, 8162), (26, 8207), (29, 8231), (36, 8294), (42, 8417),

Gene: MiniLon\_12 Start: 8189, Stop: 8605, Start Num: 4

Candidate Starts for MiniLon\_12:

(Start: 4 @8189 has 67 MA's), (12, 8282), (13, 8285), (16, 8294), (18, 8303), (19, 8309), (21, 8318), (22, 8321), (26, 8363), (36, 8450), (39, 8492), (42, 8573),

Gene: MiniMac\_12 Start: 8190, Stop: 8606, Start Num: 4

Candidate Starts for MiniMac\_12:

(Start: 4 @8190 has 67 MA's), (12, 8283), (13, 8286), (16, 8295), (18, 8304), (19, 8310), (21, 8319), (22, 8322), (26, 8364), (36, 8451), (39, 8493), (42, 8574),

Gene: MkaliMitinis3\_11 Start: 8030, Stop: 8461, Start Num: 4

Candidate Starts for MkaliMitinis3\_11:

(Start: 4 @8030 has 67 MA's), (8, 8099), (12, 8126), (16, 8138), (21, 8162), (26, 8207), (29, 8231), (36, 8294), (42, 8417),

Gene: Moostard\_12 Start: 8178, Stop: 8594, Start Num: 4

Candidate Starts for Moostard\_12:

(1, 8103), (Start: 4 @8178 has 67 MA's), (5, 8223), (12, 8271), (13, 8274), (16, 8283), (18, 8292), (19, 8298), (21, 8307), (26, 8352), (36, 8439), (42, 8562),

Gene: MsGreen\_12 Start: 8182, Stop: 8598, Start Num: 4

Candidate Starts for MsGreen\_12:

(1, 8107), (Start: 4 @8182 has 67 MA's), (5, 8227), (12, 8275), (13, 8278), (16, 8287), (18, 8296), (19, 8302), (21, 8311), (26, 8356), (36, 8443), (42, 8566),

Gene: Netyap\_11 Start: 8030, Stop: 8461, Start Num: 4

Candidate Starts for Netyap\_11:

(Start: 4 @8030 has 67 MA's), (8, 8099), (12, 8126), (16, 8138), (21, 8162), (26, 8207), (29, 8231), (36, 8294), (42, 8417),

Gene: Nicholas\_12 Start: 8182, Stop: 8598, Start Num: 4

Candidate Starts for Nicholas\_12:

(1, 8107), (Start: 4 @8182 has 67 MA's), (5, 8227), (12, 8275), (13, 8278), (16, 8287), (18, 8296), (19, 8302), (21, 8311), (26, 8356), (36, 8443), (42, 8566),

Gene: Nicholasp3\_11 Start: 8030, Stop: 8461, Start Num: 4

Candidate Starts for Nicholasp3\_11:

(Start: 4 @8030 has 67 MA's), (8, 8099), (12, 8126), (16, 8138), (21, 8162), (26, 8207), (29, 8231), (36, 8294), (42, 8417),

Gene: OhShagHennessy\_11 Start: 8007, Stop: 8438, Start Num: 4

Candidate Starts for OhShagHennessy\_11:

(1, 7932), (Start: 4 @8007 has 67 MA's), (5, 8055), (12, 8103), (14, 8109), (16, 8115), (26, 8184), (42, 8394), (44, 8406),

Gene: PYPDinur\_11 Start: 7710, Stop: 8129, Start Num: 4

Candidate Starts for PYPDinur\_11:

(1, 7635), (Start: 4 @7710 has 67 MA's), (9, 7788), (11, 7794), (12, 7806), (16, 7818), (21, 7842), (26, 7887), (34, 7950), (36, 7974), (42, 8097), (44, 8109),

Gene: Poochiewood\_11 Start: 8033, Stop: 8464, Start Num: 4

Candidate Starts for Poochiewood\_11:

(1, 7958), (Start: 4 @8033 has 67 MA's), (5, 8081), (12, 8129), (14, 8135), (16, 8141), (26, 8210), (42, 8420), (44, 8432),

Gene: Quby\_11 Start: 7709, Stop: 8128, Start Num: 4

Candidate Starts for Quby\_11:

(1, 7634), (Start: 4 @7709 has 67 MA's), (9, 7787), (10, 7790), (12, 7805), (16, 7817), (21, 7841), (26, 7886), (34, 7949), (36, 7973), (42, 8096), (44, 8108),

Gene: Rose5\_11 Start: 8033, Stop: 8464, Start Num: 4

Candidate Starts for Rose5\_11:

(1, 7958), (Start: 4 @8033 has 67 MA's), (5, 8081), (12, 8129), (14, 8135), (16, 8141), (26, 8210), (42, 8420), (44, 8432),

Gene: Rumpelstiltskin\_11 Start: 8030, Stop: 8461, Start Num: 4

Candidate Starts for Rumpelstiltskin\_11:

(Start: 4 @8030 has 67 MA's), (8, 8099), (12, 8126), (16, 8138), (21, 8162), (26, 8207), (29, 8231), (36, 8294), (42, 8417),

Gene: Samty\_12 Start: 8178, Stop: 8594, Start Num: 4

Candidate Starts for Samty\_12:

(1, 8103), (Start: 4 @8178 has 67 MA's), (5, 8223), (12, 8271), (13, 8274), (16, 8283), (18, 8292), (19, 8298), (21, 8307), (26, 8352), (36, 8439), (42, 8562),

Gene: Sarshaun\_11 Start: 8063, Stop: 8494, Start Num: 4

Candidate Starts for Sarshaun\_11:

(Start: 4 @8063 has 67 MA's), (8, 8132), (12, 8159), (16, 8171), (21, 8195), (26, 8240), (29, 8264), (36, 8327), (42, 8450),

Gene: Sheng711\_11 Start: 7710, Stop: 8129, Start Num: 4

Candidate Starts for Sheng711\_11:

(1, 7635), (Start: 4 @7710 has 67 MA's), (9, 7788), (11, 7794), (12, 7806), (16, 7818), (21, 7842), (26, 7887), (34, 7950), (36, 7974), (42, 8097), (44, 8109),

Gene: Silverleaf\_11 Start: 8033, Stop: 8464, Start Num: 4

Candidate Starts for Silverleaf\_11:

(1, 7958), (Start: 4 @8033 has 67 MA's), (5, 8081), (12, 8129), (14, 8135), (16, 8141), (26, 8210), (42, 8420), (44, 8432),

Gene: Snenia\_12 Start: 8183, Stop: 8599, Start Num: 4

Candidate Starts for Snenia\_12:

(1, 8108), (Start: 4 @8183 has 67 MA's), (5, 8228), (12, 8276), (13, 8279), (16, 8288), (18, 8297), (19, 8303), (21, 8312), (26, 8357), (36, 8444), (42, 8567),

Gene: Soap141\_11 Start: 8063, Stop: 8494, Start Num: 4

Candidate Starts for Soap141\_11:

(Start: 4 @8063 has 67 MA's), (8, 8132), (12, 8159), (16, 8171), (21, 8195), (26, 8240), (29, 8264), (36, 8327), (42, 8450),

Gene: Sparky\_9 Start: 7128, Stop: 7496, Start Num: 7

Candidate Starts for Sparky\_9:

(3, 7053), (Start: 7 @7128 has 2 MA's), (17, 7176), (20, 7194), (22, 7200), (23, 7203), (24, 7224), (25, 7233), (27, 7248), (31, 7287), (32, 7299), (36, 7335), (37, 7341), (41, 7434), (43, 7461), (45, 7479),

Gene: Tourach\_11 Start: 8043, Stop: 8474, Start Num: 4

Candidate Starts for Tourach\_11:

(Start: 4 @8043 has 67 MA's), (8, 8112), (12, 8139), (16, 8151), (21, 8175), (26, 8220), (29, 8244), (36, 8307), (42, 8430),

Gene: TriFive\_12 Start: 8182, Stop: 8598, Start Num: 4

Candidate Starts for TriFive\_12:

(1, 8107), (Start: 4 @8182 has 67 MA's), (5, 8227), (12, 8275), (13, 8278), (16, 8287), (18, 8296), (19, 8302), (21, 8311), (26, 8356), (36, 8443), (42, 8566),

Gene: Tyson\_11 Start: 8033, Stop: 8464, Start Num: 4

Candidate Starts for Tyson\_11:

(1, 7958), (Start: 4 @8033 has 67 MA's), (5, 8081), (12, 8129), (14, 8135), (16, 8141), (26, 8210), (42, 8420), (44, 8432),

Gene: UPIE\_11 Start: 8031, Stop: 8462, Start Num: 4

Candidate Starts for UPIE\_11:

(1, 7956), (Start: 4 @8031 has 67 MA's), (5, 8079), (12, 8127), (14, 8133), (16, 8139), (26, 8208), (42, 8418), (44, 8430),

Gene: Underpass\_11 Start: 8030, Stop: 8461, Start Num: 4

Candidate Starts for Underpass\_11:

(Start: 4 @8030 has 67 MA's), (8, 8099), (12, 8126), (16, 8138), (21, 8162), (26, 8207), (29, 8231), (36, 8294), (42, 8417),

Gene: Vetrix\_11 Start: 8030, Stop: 8461, Start Num: 4

Candidate Starts for Vetrix\_11:

(Start: 4 @8030 has 67 MA's), (8, 8099), (12, 8126), (16, 8138), (21, 8162), (26, 8207), (29, 8231), (36, 8294), (42, 8417),

Gene: Wamburgxpress\_11 Start: 8033, Stop: 8464, Start Num: 4

Candidate Starts for Wamburgxpress\_11:

(1, 7958), (Start: 4 @8033 has 67 MA's), (5, 8081), (12, 8129), (14, 8135), (16, 8141), (26, 8210), (42, 8420), (44, 8432),

Gene: Whirlwind\_13 Start: 8176, Stop: 8592, Start Num: 4

Candidate Starts for Whirlwind\_13:

(Start: 4 @8176 has 67 MA's), (12, 8269), (13, 8272), (16, 8281), (18, 8290), (19, 8296), (21, 8305), (22, 8308), (26, 8350), (36, 8437), (39, 8479), (42, 8560),

Gene: Wigglewigggle\_11 Start: 8063, Stop: 8494, Start Num: 4

Candidate Starts for Wigglewigggle\_11:

(Start: 4 @8063 has 67 MA's), (8, 8132), (12, 8159), (16, 8171), (21, 8195), (26, 8240), (29, 8264), (36, 8327), (42, 8450),

Gene: Wilder\_11 Start: 8030, Stop: 8461, Start Num: 4

Candidate Starts for Wilder\_11:

(Start: 4 @8030 has 67 MA's), (8, 8099), (12, 8126), (16, 8138), (21, 8162), (26, 8207), (29, 8231), (36, 8294), (42, 8417),

Gene: Winky\_11 Start: 8030, Stop: 8461, Start Num: 4

Candidate Starts for Winky\_11:

(Start: 4 @8030 has 67 MA's), (8, 8099), (12, 8126), (16, 8138), (21, 8162), (26, 8207), (29, 8231), (36, 8294), (42, 8417),

Gene: Wyatt2\_11 Start: 8033, Stop: 8464, Start Num: 4

Candidate Starts for Wyatt2\_11:

(1, 7958), (Start: 4 @8033 has 67 MA's), (5, 8081), (12, 8129), (14, 8135), (16, 8141), (26, 8210), (42, 8420), (44, 8432),

Gene: Zakai\_11 Start: 8018, Stop: 8449, Start Num: 4

Candidate Starts for Zakai\_11:

(Start: 4 @8018 has 67 MA's), (8, 8087), (12, 8114), (16, 8126), (21, 8150), (26, 8195), (29, 8219), (36, 8282), (42, 8405),

Gene: Zaria\_11 Start: 8034, Stop: 8465, Start Num: 4

Candidate Starts for Zaria\_11:

(1, 7959), (Start: 4 @8034 has 67 MA's), (5, 8082), (12, 8130), (14, 8136), (16, 8142), (26, 8211), (42, 8421), (44, 8433),

Gene: ZhongYanYuan\_10 Start: 7858, Stop: 8289, Start Num: 4

Candidate Starts for ZhongYanYuan\_10:

(Start: 4 @7858 has 67 MA's), (8, 7927), (12, 7954), (15, 7963), (16, 7966), (21, 7990), (26, 8035), (29, 8059), (36, 8122), (42, 8245),