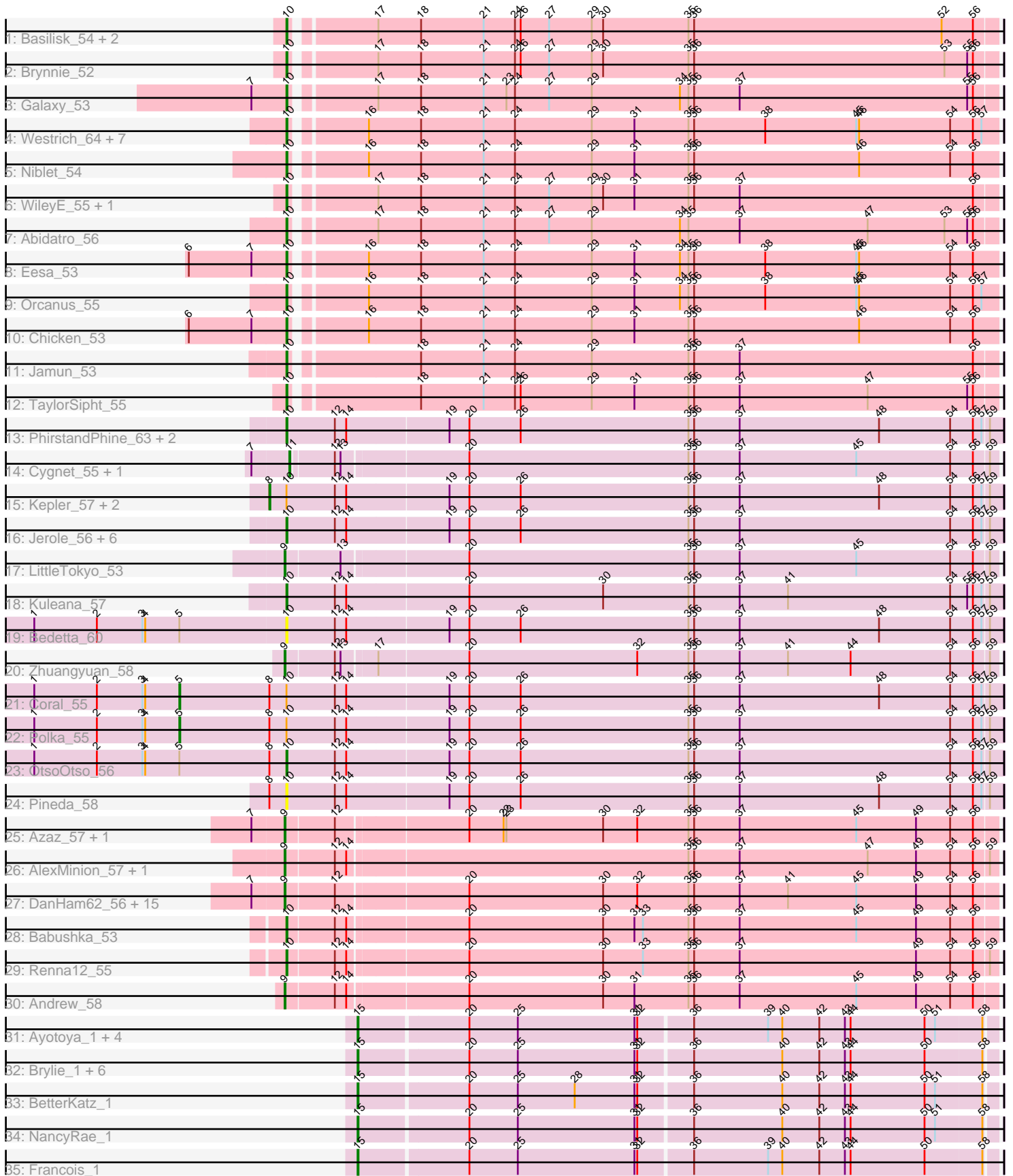


Pham 301298



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 301298 Report

This analysis was run 06/08/26 on database version 649.

Pham number 301298 has 83 members, 18 are drafts.

Phages represented in each track:

- Track 1 : Basilisk_54, Ruchi_53, Vulpecula_53
- Track 2 : Brynnie_52
- Track 3 : Galaxy_53
- Track 4 : Westrich_64, Gravel_65, Zixiang_53, Toad24_56, Pelletreau_65, Shen_53, Amanises_56, KendraB23_64
- Track 5 : Niblet_54
- Track 6 : WileyE_55, Chickaboom_55
- Track 7 : Abidatro_56
- Track 8 : Eesa_53
- Track 9 : Orcanus_55
- Track 10 : Chicken_53
- Track 11 : Jamun_53
- Track 12 : TaylorSipht_55
- Track 13 : PhirstandPhine_63, Lunar_57, GramZayde_57
- Track 14 : Cygnet_55, Antrice_56
- Track 15 : Kepler_57, Melons_57, Daob_57
- Track 16 : Jerole_56, Amelia_55, Cote_58, HannahPhantana_57, Bible12_59, Colusalem_56, Damocles_59
- Track 17 : LittleTokyo_53
- Track 18 : Kuleana_57
- Track 19 : Bedetta_60
- Track 20 : Zhuangyuan_58
- Track 21 : Coral_55
- Track 22 : Polka_55
- Track 23 : OtsoOtso_56
- Track 24 : Pineda_58
- Track 25 : Azaz_57, Leona_55
- Track 26 : AlexMinion_57, StuartMinion_47
- Track 27 : DanHam62_56, Fingolfin_56, Amphitrite_56, Juno112_55, AdoptaAdorb5_55, AmiCi24_55, KHumphrey_56, Atlantica_56, RedFox_56, HamCheese_56, Laphuphu24k_55, Glotell_57, Camara_56, Rattail_56, PhluffyCoco_56, Oppalora_55
- Track 28 : Babushka_53
- Track 29 : Renna12_55
- Track 30 : Andrew_58
- Track 31 : Ayotoya_1, GrandSlam_1, Bock_1, Chop_1, Hamood_1

- Track 32 : Brylie_1, Parada_1, Nadeem_1, Pimento_1, DelRio_1, Mulch_1, WheatThin_1
- Track 33 : BetterKatz_1
- Track 34 : NancyRae_1
- Track 35 : Francois_1

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

The start number called the most often in the published annotations is 10, it was called in 27 of the 65 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Abidatro_56, Amanises_56, Amelia_55, Babushka_53, Basilisk_54, Bedetta_60, Bibble12_59, Brynnie_52, Chickaboom_55, Chicken_53, Colusalem_56, Cote_58, Damocles_59, Eesa_53, Galaxy_53, GramZayde_57, Gravel_65, HannahPhantana_57, Jamun_53, Jerole_56, KendraB23_64, Kuleana_57, Lunar_57, Niblet_54, Orcanus_55, OtsoOtso_56, Pelletreau_65, PhirstandPhine_63, Pineda_58, Renna12_55, Ruchi_53, Shen_53, TaylorSipt_55, Toad24_56, Vulpecula_53, Westrich_64, WileyE_55, Zixiang_53,

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

- Coral_55, Daob_57, Kepler_57, Melons_57, Polka_55,

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

- AdoptaAdorbs_55, AlexMinion_57, AmiCi24_55, Amphitrite_56, Andrew_58, Antrice_56, Atlantica_56, Ayotoya_1, Azaz_57, BetterKatz_1, Bock_1, Brylie_1, Camara_56, Chop_1, Cygnet_55, DanHam62_56, DelRio_1, Fingolfin_56, Francois_1, Glotell_57, GrandSlam_1, HamCheese_56, Hamood_1, Juno112_55, KHumphrey_56, Laphuphu24k_55, Leona_55, LittleTokyo_53, Mulch_1, Nadeem_1, NancyRae_1, Oppalora_55, Parada_1, PhluffyCoco_56, Pimento_1, Rattail_56, RedFox_56, StuartMinion_47, WheatThin_1, Zhuangyuan_58,

Summary by start number:

Start 5:

- Found in 4 of 83 (4.8%) of genes in pham
- Manual Annotations of this start: 2 of 65
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Coral_55 (AS2), Polka_55 (AS2),

Start 8:

- Found in 7 of 83 (8.4%) of genes in pham
- Manual Annotations of this start: 3 of 65
- Called 42.9% of time when present
- Phage (with cluster) where this start called: Daob_57 (AS2), Kepler_57 (AS2), Melons_57 (AS2),

Start 9:

- Found in 23 of 83 (27.7%) of genes in pham
- Manual Annotations of this start: 16 of 65

- Called 100.0% of time when present
- Phage (with cluster) where this start called: AdoptaAdorbs_55 (AS3), AlexMinion_57 (AS3), AmiCi24_55 (AS3), Amphitrite_56 (AS3), Andrew_58 (AS3), Atlantica_56 (AS3), Azaz_57 (AS3), Camara_56 (AS3), DanHam62_56 (AS3), Fingolfin_56 (AS3), Glotell_57 (AS3), HamCheese_56 (AS3), Juno112_55 (AS3), KHumphrey_56 (AS3), Laphuphu24k_55 (AS3), Leona_55 (AS3), LittleTokyo_53 (AS2), Oppalora_55 (AS3), PhluffyCoco_56 (AS3), Rattail_56 (AS3), RedFox_56 (AS3), StuartMinion_47 (AS3), Zhuangyuan_58 (AS2),

Start 10:

- Found in 43 of 83 (51.8%) of genes in pham
- Manual Annotations of this start: 27 of 65
- Called 88.4% of time when present
- Phage (with cluster) where this start called: Abidatro_56 (AS1), Amanises_56 (AS1), Amelia_55 (AS2), Babushka_53 (AS3), Basilisk_54 (AS1), Bedetta_60 (AS2), Bible12_59 (AS2), Brynnie_52 (AS1), Chickaboom_55 (AS1), Chicken_53 (AS1), Colusalem_56 (AS2), Cote_58 (AS2), Damocles_59 (AS2), Eesa_53 (AS1), Galaxy_53 (AS1), GramZayde_57 (AS2), Gravel_65 (AS1), HannahPhantana_57 (AS2), Jamun_53 (AS1), Jerole_56 (AS2), KendraB23_64 (AS1), Kuleana_57 (AS2), Lunar_57 (AS2), Niblet_54 (AS1), Orcanus_55 (AS1), OtsoOtso_56 (AS2), Pelletreau_65 (AS1), PhirstandPhine_63 (AS2), Pineda_58 (AS2), Renna12_55 (AS3), Ruchi_53 (AS1), Shen_53 (AS1), TaylorSipht_55 (AS1), Toad24_56 (AS1), Vulpecula_53 (AS1), Westrich_64 (AS1), WileyE_55 (AS1), Zixiang_53 (AS1),

Start 11:

- Found in 2 of 83 (2.4%) of genes in pham
- Manual Annotations of this start: 2 of 65
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Antrice_56 (AS2), Cygnet_55 (AS2),

Start 15:

- Found in 15 of 83 (18.1%) of genes in pham
- Manual Annotations of this start: 15 of 65
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ayotoya_1 (DI), BetterKatz_1 (DI), Bock_1 (DI), Brylie_1 (DI), Chop_1 (DI), DelRio_1 (DI), Francois_1 (DI), GrandSlam_1 (DI), Hamood_1 (DI), Mulch_1 (DI), Nadeem_1 (DI), NancyRae_1 (DI), Parada_1 (DI), Pimento_1 (DI), WheatThin_1 (DI),

Summary by clusters:

There are 4 clusters represented in this pham: AS3, AS2, AS1, DI,

Info for manual annotations of cluster AS1:

- Start number 10 was manually annotated 17 times for cluster AS1.

Info for manual annotations of cluster AS2:

- Start number 5 was manually annotated 2 times for cluster AS2.
- Start number 8 was manually annotated 3 times for cluster AS2.
- Start number 9 was manually annotated 2 times for cluster AS2.
- Start number 10 was manually annotated 8 times for cluster AS2.
- Start number 11 was manually annotated 2 times for cluster AS2.

Info for manual annotations of cluster AS3:

- Start number 9 was manually annotated 14 times for cluster AS3.
- Start number 10 was manually annotated 2 times for cluster AS3.

Info for manual annotations of cluster DI:

- Start number 15 was manually annotated 15 times for cluster DI.

Gene Information:

Gene: Abidatro_56 Start: 35238, Stop: 35966, Start Num: 10

Candidate Starts for Abidatro_56:

(Start: 10 @35238 has 27 MA's), (17, 35316), (18, 35361), (21, 35427), (24, 35460), (27, 35496), (29, 35541), (34, 35634), (35, 35643), (37, 35697), (47, 35832), (53, 35913), (55, 35937), (56, 35943),

Gene: AdoptaAdorbs_55 Start: 34059, Stop: 34793, Start Num: 9

Candidate Starts for AdoptaAdorbs_55:

(7, 34026), (Start: 9 @34059 has 16 MA's), (12, 34107), (20, 34239), (30, 34380), (32, 34416), (35, 34470), (36, 34476), (37, 34524), (41, 34575), (45, 34647), (49, 34710), (54, 34746), (56, 34770),

Gene: AlexMinion_57 Start: 34089, Stop: 34823, Start Num: 9

Candidate Starts for AlexMinion_57:

(Start: 9 @34089 has 16 MA's), (12, 34137), (14, 34149), (35, 34500), (36, 34506), (37, 34554), (47, 34689), (49, 34740), (54, 34776), (56, 34800), (59, 34815),

Gene: Amanises_56 Start: 35571, Stop: 36302, Start Num: 10

Candidate Starts for Amanises_56:

(Start: 10 @35571 has 27 MA's), (16, 35640), (18, 35694), (21, 35760), (24, 35793), (29, 35874), (31, 35919), (35, 35976), (36, 35982), (38, 36057), (45, 36153), (46, 36156), (54, 36252), (56, 36276), (57, 36285),

Gene: Amelia_55 Start: 33239, Stop: 33988, Start Num: 10

Candidate Starts for Amelia_55:

(Start: 10 @33239 has 27 MA's), (12, 33290), (14, 33302), (19, 33407), (20, 33428), (26, 33482), (35, 33659), (36, 33665), (37, 33713), (54, 33935), (56, 33959), (57, 33968), (59, 33974),

Gene: AmiCi24_55 Start: 34168, Stop: 34902, Start Num: 9

Candidate Starts for AmiCi24_55:

(7, 34135), (Start: 9 @34168 has 16 MA's), (12, 34216), (20, 34348), (30, 34489), (32, 34525), (35, 34579), (36, 34585), (37, 34633), (41, 34684), (45, 34756), (49, 34819), (54, 34855), (56, 34879),

Gene: Amphitrite_56 Start: 34058, Stop: 34792, Start Num: 9

Candidate Starts for Amphitrite_56:

(7, 34025), (Start: 9 @34058 has 16 MA's), (12, 34106), (20, 34238), (30, 34379), (32, 34415), (35, 34469), (36, 34475), (37, 34523), (41, 34574), (45, 34646), (49, 34709), (54, 34745), (56, 34769),

Gene: Andrew_58 Start: 34468, Stop: 35202, Start Num: 9

Candidate Starts for Andrew_58:

(Start: 9 @34468 has 16 MA's), (12, 34516), (14, 34528), (20, 34648), (30, 34789), (31, 34822), (35, 34879), (36, 34885), (37, 34933), (45, 35056), (49, 35119), (54, 35155), (56, 35179),

Gene: Antrice_56 Start: 34053, Stop: 34781, Start Num: 11

Candidate Starts for Antrice_56:

(7, 34017), (Start: 11 @34053 has 2 MA's), (12, 34095), (13, 34101), (20, 34227), (35, 34458), (36, 34464), (37, 34512), (45, 34635), (54, 34734), (56, 34758), (59, 34773),

Gene: Atlantica_56 Start: 34170, Stop: 34904, Start Num: 9

Candidate Starts for Atlantica_56:

(7, 34137), (Start: 9 @34170 has 16 MA's), (12, 34218), (20, 34350), (30, 34491), (32, 34527), (35, 34581), (36, 34587), (37, 34635), (41, 34686), (45, 34758), (49, 34821), (54, 34857), (56, 34881),

Gene: Ayotoya_1 Start: 139, Stop: 792, Start Num: 15

Candidate Starts for Ayotoya_1:

(Start: 15 @139 has 15 MA's), (20, 250), (25, 301), (31, 424), (32, 427), (36, 481), (39, 559), (40, 574), (42, 613), (43, 640), (44, 646), (50, 724), (51, 733), (58, 781),

Gene: Azaz_57 Start: 34254, Stop: 34988, Start Num: 9

Candidate Starts for Azaz_57:

(7, 34221), (Start: 9 @34254 has 16 MA's), (12, 34302), (20, 34434), (22, 34470), (23, 34473), (30, 34575), (32, 34611), (35, 34665), (36, 34671), (37, 34719), (45, 34842), (49, 34905), (54, 34941), (56, 34965),

Gene: Babushka_53 Start: 33984, Stop: 34718, Start Num: 10

Candidate Starts for Babushka_53:

(Start: 10 @33984 has 27 MA's), (12, 34032), (14, 34044), (20, 34164), (30, 34305), (31, 34338), (33, 34347), (35, 34395), (36, 34401), (37, 34449), (45, 34572), (49, 34635), (54, 34671), (56, 34695),

Gene: Basilisk_54 Start: 34461, Stop: 35189, Start Num: 10

Candidate Starts for Basilisk_54:

(Start: 10 @34461 has 27 MA's), (17, 34539), (18, 34584), (21, 34650), (24, 34683), (26, 34689), (27, 34719), (29, 34764), (30, 34776), (35, 34866), (36, 34872), (52, 35133), (56, 35166),

Gene: Bedetta_60 Start: 33399, Stop: 34148, Start Num: 10

Candidate Starts for Bedetta_60:

(1, 33135), (2, 33201), (3, 33249), (4, 33252), (Start: 5 @33288 has 2 MA's), (Start: 10 @33399 has 27 MA's), (12, 33450), (14, 33462), (19, 33567), (20, 33588), (26, 33642), (35, 33819), (36, 33825), (37, 33873), (48, 34020), (54, 34095), (56, 34119), (57, 34128), (59, 34134),

Gene: BetterKatz_1 Start: 139, Stop: 792, Start Num: 15

Candidate Starts for BetterKatz_1:

(Start: 15 @139 has 15 MA's), (20, 250), (25, 301), (28, 361), (31, 424), (32, 427), (36, 481), (40, 574), (42, 613), (43, 640), (44, 646), (50, 724), (51, 733), (58, 781),

Gene: Bible12_59 Start: 33234, Stop: 33983, Start Num: 10

Candidate Starts for Bible12_59:

(Start: 10 @33234 has 27 MA's), (12, 33285), (14, 33297), (19, 33402), (20, 33423), (26, 33477), (35, 33654), (36, 33660), (37, 33708), (54, 33930), (56, 33954), (57, 33963), (59, 33969),

Gene: Bock_1 Start: 139, Stop: 792, Start Num: 15

Candidate Starts for Bock_1:

(Start: 15 @139 has 15 MA's), (20, 250), (25, 301), (31, 424), (32, 427), (36, 481), (39, 559), (40, 574), (42, 613), (43, 640), (44, 646), (50, 724), (51, 733), (58, 781),

Gene: Brylie_1 Start: 139, Stop: 792, Start Num: 15

Candidate Starts for Brylie_1:

(Start: 15 @139 has 15 MA's), (20, 250), (25, 301), (31, 424), (32, 427), (36, 481), (40, 574), (42, 613), (43, 640), (44, 646), (50, 724), (58, 781),

Gene: Brynnie_52 Start: 34086, Stop: 34814, Start Num: 10

Candidate Starts for Brynnie_52:

(Start: 10 @34086 has 27 MA's), (17, 34164), (18, 34209), (21, 34275), (24, 34308), (26, 34314), (27, 34344), (29, 34389), (30, 34401), (35, 34491), (36, 34497), (53, 34761), (55, 34785), (56, 34791),

Gene: Camara_56 Start: 34061, Stop: 34795, Start Num: 9

Candidate Starts for Camara_56:

(7, 34028), (Start: 9 @34061 has 16 MA's), (12, 34109), (20, 34241), (30, 34382), (32, 34418), (35, 34472), (36, 34478), (37, 34526), (41, 34577), (45, 34649), (49, 34712), (54, 34748), (56, 34772),

Gene: Chickaboom_55 Start: 34797, Stop: 35525, Start Num: 10

Candidate Starts for Chickaboom_55:

(Start: 10 @34797 has 27 MA's), (17, 34875), (18, 34920), (21, 34986), (24, 35019), (27, 35055), (29, 35100), (30, 35112), (31, 35145), (35, 35202), (36, 35208), (37, 35256), (56, 35502),

Gene: Chicken_53 Start: 34897, Stop: 35628, Start Num: 10

Candidate Starts for Chicken_53:

(6, 34795), (7, 34861), (Start: 10 @34897 has 27 MA's), (16, 34966), (18, 35020), (21, 35086), (24, 35119), (29, 35200), (31, 35245), (35, 35302), (36, 35308), (46, 35482), (54, 35578), (56, 35602),

Gene: Chop_1 Start: 139, Stop: 792, Start Num: 15

Candidate Starts for Chop_1:

(Start: 15 @139 has 15 MA's), (20, 250), (25, 301), (31, 424), (32, 427), (36, 481), (39, 559), (40, 574), (42, 613), (43, 640), (44, 646), (50, 724), (51, 733), (58, 781),

Gene: Colusalem_56 Start: 33216, Stop: 33965, Start Num: 10

Candidate Starts for Colusalem_56:

(Start: 10 @33216 has 27 MA's), (12, 33267), (14, 33279), (19, 33384), (20, 33405), (26, 33459), (35, 33636), (36, 33642), (37, 33690), (54, 33912), (56, 33936), (57, 33945), (59, 33951),

Gene: Coral_55 Start: 33033, Stop: 33893, Start Num: 5

Candidate Starts for Coral_55:

(1, 32880), (2, 32946), (3, 32994), (4, 32997), (Start: 5 @33033 has 2 MA's), (Start: 8 @33126 has 3 MA's), (Start: 10 @33144 has 27 MA's), (12, 33195), (14, 33207), (19, 33312), (20, 33333), (26, 33387), (35, 33564), (36, 33570), (37, 33618), (48, 33765), (54, 33840), (56, 33864), (57, 33873), (59, 33879),

Gene: Cote_58 Start: 33577, Stop: 34326, Start Num: 10

Candidate Starts for Cote_58:

(Start: 10 @33577 has 27 MA's), (12, 33628), (14, 33640), (19, 33745), (20, 33766), (26, 33820), (35, 33997), (36, 34003), (37, 34051), (54, 34273), (56, 34297), (57, 34306), (59, 34312),

Gene: Cygnet_55 Start: 34657, Stop: 35385, Start Num: 11

Candidate Starts for Cygnet_55:

(7, 34621), (Start: 11 @34657 has 2 MA's), (12, 34699), (13, 34705), (20, 34831), (35, 35062), (36, 35068), (37, 35116), (45, 35239), (54, 35338), (56, 35362), (59, 35377),

Gene: Damocles_59 Start: 33375, Stop: 34124, Start Num: 10

Candidate Starts for Damocles_59:

(Start: 10 @33375 has 27 MA's), (12, 33426), (14, 33438), (19, 33543), (20, 33564), (26, 33618), (35, 33795), (36, 33801), (37, 33849), (54, 34071), (56, 34095), (57, 34104), (59, 34110),

Gene: DanHam62_56 Start: 34169, Stop: 34903, Start Num: 9

Candidate Starts for DanHam62_56:

(7, 34136), (Start: 9 @34169 has 16 MA's), (12, 34217), (20, 34349), (30, 34490), (32, 34526), (35, 34580), (36, 34586), (37, 34634), (41, 34685), (45, 34757), (49, 34820), (54, 34856), (56, 34880),

Gene: Daob_57 Start: 33570, Stop: 34337, Start Num: 8

Candidate Starts for Daob_57:

(Start: 8 @33570 has 3 MA's), (Start: 10 @33588 has 27 MA's), (12, 33639), (14, 33651), (19, 33756), (20, 33777), (26, 33831), (35, 34008), (36, 34014), (37, 34062), (48, 34209), (54, 34284), (56, 34308), (57, 34317), (59, 34323),

Gene: DelRio_1 Start: 139, Stop: 792, Start Num: 15

Candidate Starts for DelRio_1:

(Start: 15 @139 has 15 MA's), (20, 250), (25, 301), (31, 424), (32, 427), (36, 481), (40, 574), (42, 613), (43, 640), (44, 646), (50, 724), (58, 781),

Gene: Eesa_53 Start: 35312, Stop: 36043, Start Num: 10

Candidate Starts for Eesa_53:

(6, 35210), (7, 35276), (Start: 10 @35312 has 27 MA's), (16, 35381), (18, 35435), (21, 35501), (24, 35534), (29, 35615), (31, 35660), (34, 35708), (35, 35717), (36, 35723), (38, 35798), (45, 35894), (46, 35897), (54, 35993), (56, 36017),

Gene: Fingolfin_56 Start: 34172, Stop: 34906, Start Num: 9

Candidate Starts for Fingolfin_56:

(7, 34139), (Start: 9 @34172 has 16 MA's), (12, 34220), (20, 34352), (30, 34493), (32, 34529), (35, 34583), (36, 34589), (37, 34637), (41, 34688), (45, 34760), (49, 34823), (54, 34859), (56, 34883),

Gene: Francois_1 Start: 138, Stop: 791, Start Num: 15

Candidate Starts for Francois_1:

(Start: 15 @138 has 15 MA's), (20, 249), (25, 300), (31, 423), (32, 426), (36, 480), (39, 558), (40, 573), (42, 612), (43, 639), (44, 645), (50, 723), (58, 780),

Gene: Galaxy_53 Start: 33655, Stop: 34383, Start Num: 10

Candidate Starts for Galaxy_53:

(7, 33619), (Start: 10 @33655 has 27 MA's), (17, 33733), (18, 33778), (21, 33844), (23, 33868), (24, 33877), (27, 33913), (29, 33958), (34, 34051), (35, 34060), (36, 34066), (37, 34114), (55, 34354), (56, 34360),

Gene: Glotell_57 Start: 34216, Stop: 34950, Start Num: 9

Candidate Starts for Glotell_57:

(7, 34183), (Start: 9 @34216 has 16 MA's), (12, 34264), (20, 34396), (30, 34537), (32, 34573), (35, 34627), (36, 34633), (37, 34681), (41, 34732), (45, 34804), (49, 34867), (54, 34903), (56, 34927),

Gene: GramZayde_57 Start: 33413, Stop: 34162, Start Num: 10

Candidate Starts for GramZayde_57:

(Start: 10 @33413 has 27 MA's), (12, 33464), (14, 33476), (19, 33581), (20, 33602), (26, 33656), (35, 33833), (36, 33839), (37, 33887), (48, 34034), (54, 34109), (56, 34133), (57, 34142), (59, 34148),

Gene: GrandSlam_1 Start: 139, Stop: 792, Start Num: 15

Candidate Starts for GrandSlam_1:

(Start: 15 @139 has 15 MA's), (20, 250), (25, 301), (31, 424), (32, 427), (36, 481), (39, 559), (40, 574), (42, 613), (43, 640), (44, 646), (50, 724), (51, 733), (58, 781),

Gene: Gravel_65 Start: 35885, Stop: 36616, Start Num: 10

Candidate Starts for Gravel_65:

(Start: 10 @35885 has 27 MA's), (16, 35954), (18, 36008), (21, 36074), (24, 36107), (29, 36188), (31, 36233), (35, 36290), (36, 36296), (38, 36371), (45, 36467), (46, 36470), (54, 36566), (56, 36590), (57, 36599),

Gene: HamCheese_56 Start: 34156, Stop: 34890, Start Num: 9

Candidate Starts for HamCheese_56:

(7, 34123), (Start: 9 @34156 has 16 MA's), (12, 34204), (20, 34336), (30, 34477), (32, 34513), (35, 34567), (36, 34573), (37, 34621), (41, 34672), (45, 34744), (49, 34807), (54, 34843), (56, 34867),

Gene: Hamood_1 Start: 139, Stop: 792, Start Num: 15

Candidate Starts for Hamood_1:

(Start: 15 @139 has 15 MA's), (20, 250), (25, 301), (31, 424), (32, 427), (36, 481), (39, 559), (40, 574), (42, 613), (43, 640), (44, 646), (50, 724), (51, 733), (58, 781),

Gene: HannahPhantana_57 Start: 33234, Stop: 33983, Start Num: 10

Candidate Starts for HannahPhantana_57:

(Start: 10 @33234 has 27 MA's), (12, 33285), (14, 33297), (19, 33402), (20, 33423), (26, 33477), (35, 33654), (36, 33660), (37, 33708), (54, 33930), (56, 33954), (57, 33963), (59, 33969),

Gene: Jamun_53 Start: 34887, Stop: 35615, Start Num: 10

Candidate Starts for Jamun_53:

(Start: 10 @34887 has 27 MA's), (18, 35010), (21, 35076), (24, 35109), (29, 35190), (35, 35292), (36, 35298), (37, 35346), (56, 35592),

Gene: Jerole_56 Start: 33358, Stop: 34107, Start Num: 10

Candidate Starts for Jerole_56:

(Start: 10 @33358 has 27 MA's), (12, 33409), (14, 33421), (19, 33526), (20, 33547), (26, 33601), (35, 33778), (36, 33784), (37, 33832), (54, 34054), (56, 34078), (57, 34087), (59, 34093),

Gene: Juno112_55 Start: 34172, Stop: 34906, Start Num: 9

Candidate Starts for Juno112_55:

(7, 34139), (Start: 9 @34172 has 16 MA's), (12, 34220), (20, 34352), (30, 34493), (32, 34529), (35, 34583), (36, 34589), (37, 34637), (41, 34688), (45, 34760), (49, 34823), (54, 34859), (56, 34883),

Gene: KHumphrey_56 Start: 34060, Stop: 34794, Start Num: 9

Candidate Starts for KHumphrey_56:

(7, 34027), (Start: 9 @34060 has 16 MA's), (12, 34108), (20, 34240), (30, 34381), (32, 34417), (35, 34471), (36, 34477), (37, 34525), (41, 34576), (45, 34648), (49, 34711), (54, 34747), (56, 34771),

Gene: KendraB23_64 Start: 35573, Stop: 36304, Start Num: 10

Candidate Starts for KendraB23_64:

(Start: 10 @35573 has 27 MA's), (16, 35642), (18, 35696), (21, 35762), (24, 35795), (29, 35876), (31, 35921), (35, 35978), (36, 35984), (38, 36059), (45, 36155), (46, 36158), (54, 36254), (56, 36278), (57, 36287),

Gene: Kepler_57 Start: 33337, Stop: 34104, Start Num: 8

Candidate Starts for Kepler_57:

(Start: 8 @33337 has 3 MA's), (Start: 10 @33355 has 27 MA's), (12, 33406), (14, 33418), (19, 33523), (20, 33544), (26, 33598), (35, 33775), (36, 33781), (37, 33829), (48, 33976), (54, 34051), (56, 34075), (57, 34084), (59, 34090),

Gene: Kuleana_57 Start: 33673, Stop: 34422, Start Num: 10

Candidate Starts for Kuleana_57:

(Start: 10 @33673 has 27 MA's), (12, 33724), (14, 33736), (20, 33862), (30, 34003), (35, 34093), (36, 34099), (37, 34147), (41, 34198), (54, 34369), (55, 34387), (56, 34393), (57, 34402), (59, 34408),

Gene: Laphuphu24k_55 Start: 34156, Stop: 34890, Start Num: 9

Candidate Starts for Laphuphu24k_55:

(7, 34123), (Start: 9 @34156 has 16 MA's), (12, 34204), (20, 34336), (30, 34477), (32, 34513), (35, 34567), (36, 34573), (37, 34621), (41, 34672), (45, 34744), (49, 34807), (54, 34843), (56, 34867),

Gene: Leona_55 Start: 34255, Stop: 34989, Start Num: 9

Candidate Starts for Leona_55:

(7, 34222), (Start: 9 @34255 has 16 MA's), (12, 34303), (20, 34435), (22, 34471), (23, 34474), (30, 34576), (32, 34612), (35, 34666), (36, 34672), (37, 34720), (45, 34843), (49, 34906), (54, 34942), (56, 34966),

Gene: LittleTokyo_53 Start: 32621, Stop: 33355, Start Num: 9

Candidate Starts for LittleTokyo_53:

(Start: 9 @32621 has 16 MA's), (13, 32675), (20, 32801), (35, 33032), (36, 33038), (37, 33086), (45, 33209), (54, 33308), (56, 33332), (59, 33347),

Gene: Lunar_57 Start: 33267, Stop: 34016, Start Num: 10

Candidate Starts for Lunar_57:

(Start: 10 @33267 has 27 MA's), (12, 33318), (14, 33330), (19, 33435), (20, 33456), (26, 33510), (35, 33687), (36, 33693), (37, 33741), (48, 33888), (54, 33963), (56, 33987), (57, 33996), (59, 34002),

Gene: Melons_57 Start: 33063, Stop: 33830, Start Num: 8

Candidate Starts for Melons_57:

(Start: 8 @33063 has 3 MA's), (Start: 10 @33081 has 27 MA's), (12, 33132), (14, 33144), (19, 33249), (20, 33270), (26, 33324), (35, 33501), (36, 33507), (37, 33555), (48, 33702), (54, 33777), (56, 33801), (57, 33810), (59, 33816),

Gene: Mulch_1 Start: 139, Stop: 792, Start Num: 15

Candidate Starts for Mulch_1:

(Start: 15 @139 has 15 MA's), (20, 250), (25, 301), (31, 424), (32, 427), (36, 481), (40, 574), (42, 613), (43, 640), (44, 646), (50, 724), (58, 781),

Gene: Nadeem_1 Start: 139, Stop: 792, Start Num: 15

Candidate Starts for Nadeem_1:

(Start: 15 @139 has 15 MA's), (20, 250), (25, 301), (31, 424), (32, 427), (36, 481), (40, 574), (42, 613), (43, 640), (44, 646), (50, 724), (58, 781),

Gene: NancyRae_1 Start: 139, Stop: 792, Start Num: 15

Candidate Starts for NancyRae_1:

(Start: 15 @139 has 15 MA's), (20, 250), (25, 301), (31, 424), (32, 427), (36, 481), (40, 574), (42, 613), (43, 640), (44, 646), (50, 724), (51, 733), (58, 781),

Gene: Niblet_54 Start: 35194, Stop: 35925, Start Num: 10

Candidate Starts for Niblet_54:

(Start: 10 @35194 has 27 MA's), (16, 35263), (18, 35317), (21, 35383), (24, 35416), (29, 35497), (31, 35542), (35, 35599), (36, 35605), (46, 35779), (54, 35875), (56, 35899),

Gene: Oppalora_55 Start: 34170, Stop: 34904, Start Num: 9

Candidate Starts for Oppalora_55:

(7, 34137), (Start: 9 @34170 has 16 MA's), (12, 34218), (20, 34350), (30, 34491), (32, 34527), (35, 34581), (36, 34587), (37, 34635), (41, 34686), (45, 34758), (49, 34821), (54, 34857), (56, 34881),

Gene: Orcanus_55 Start: 35170, Stop: 35901, Start Num: 10

Candidate Starts for Orcanus_55:

(Start: 10 @35170 has 27 MA's), (16, 35239), (18, 35293), (21, 35359), (24, 35392), (29, 35473), (31, 35518), (34, 35566), (35, 35575), (36, 35581), (38, 35656), (45, 35752), (46, 35755), (54, 35851), (56, 35875), (57, 35884),

Gene: OtsoOtso_56 Start: 33089, Stop: 33838, Start Num: 10

Candidate Starts for OtsoOtso_56:

(1, 32825), (2, 32891), (3, 32939), (4, 32942), (Start: 5 @32978 has 2 MA's), (Start: 8 @33071 has 3 MA's), (Start: 10 @33089 has 27 MA's), (12, 33140), (14, 33152), (19, 33257), (20, 33278), (26, 33332), (35, 33509), (36, 33515), (37, 33563), (54, 33785), (56, 33809), (57, 33818), (59, 33824),

Gene: Parada_1 Start: 139, Stop: 792, Start Num: 15

Candidate Starts for Parada_1:

(Start: 15 @139 has 15 MA's), (20, 250), (25, 301), (31, 424), (32, 427), (36, 481), (40, 574), (42, 613), (43, 640), (44, 646), (50, 724), (58, 781),

Gene: Pelletreau_65 Start: 35885, Stop: 36616, Start Num: 10

Candidate Starts for Pelletreau_65:

(Start: 10 @35885 has 27 MA's), (16, 35954), (18, 36008), (21, 36074), (24, 36107), (29, 36188), (31, 36233), (35, 36290), (36, 36296), (38, 36371), (45, 36467), (46, 36470), (54, 36566), (56, 36590), (57, 36599),

Gene: PhirstandPhine_63 Start: 33227, Stop: 33976, Start Num: 10

Candidate Starts for PhirstandPhine_63:

(Start: 10 @33227 has 27 MA's), (12, 33278), (14, 33290), (19, 33395), (20, 33416), (26, 33470), (35, 33647), (36, 33653), (37, 33701), (48, 33848), (54, 33923), (56, 33947), (57, 33956), (59, 33962),

Gene: PhluffyCoco_56 Start: 34271, Stop: 35005, Start Num: 9

Candidate Starts for PhluffyCoco_56:

(7, 34238), (Start: 9 @34271 has 16 MA's), (12, 34319), (20, 34451), (30, 34592), (32, 34628), (35, 34682), (36, 34688), (37, 34736), (41, 34787), (45, 34859), (49, 34922), (54, 34958), (56, 34982),

Gene: Pimento_1 Start: 139, Stop: 792, Start Num: 15

Candidate Starts for Pimento_1:

(Start: 15 @139 has 15 MA's), (20, 250), (25, 301), (31, 424), (32, 427), (36, 481), (40, 574), (42, 613), (43, 640), (44, 646), (50, 724), (58, 781),

Gene: Pineda_58 Start: 33396, Stop: 34145, Start Num: 10

Candidate Starts for Pineda_58:

(Start: 8 @33378 has 3 MA's), (Start: 10 @33396 has 27 MA's), (12, 33447), (14, 33459), (19, 33564), (20, 33585), (26, 33639), (35, 33816), (36, 33822), (37, 33870), (48, 34017), (54, 34092), (56, 34116), (57, 34125), (59, 34131),

Gene: Polka_55 Start: 32978, Stop: 33838, Start Num: 5

Candidate Starts for Polka_55:

(1, 32825), (2, 32891), (3, 32939), (4, 32942), (Start: 5 @32978 has 2 MA's), (Start: 8 @33071 has 3 MA's), (Start: 10 @33089 has 27 MA's), (12, 33140), (14, 33152), (19, 33257), (20, 33278), (26, 33332), (35, 33509), (36, 33515), (37, 33563), (54, 33785), (56, 33809), (57, 33818), (59, 33824),

Gene: Rattail_56 Start: 34356, Stop: 35090, Start Num: 9

Candidate Starts for Rattail_56:

(7, 34323), (Start: 9 @34356 has 16 MA's), (12, 34404), (20, 34536), (30, 34677), (32, 34713), (35, 34767), (36, 34773), (37, 34821), (41, 34872), (45, 34944), (49, 35007), (54, 35043), (56, 35067),

Gene: RedFox_56 Start: 34269, Stop: 35003, Start Num: 9

Candidate Starts for RedFox_56:

(7, 34236), (Start: 9 @34269 has 16 MA's), (12, 34317), (20, 34449), (30, 34590), (32, 34626), (35, 34680), (36, 34686), (37, 34734), (41, 34785), (45, 34857), (49, 34920), (54, 34956), (56, 34980),

Gene: Renna12_55 Start: 34125, Stop: 34859, Start Num: 10

Candidate Starts for Renna12_55:

(Start: 10 @34125 has 27 MA's), (12, 34173), (14, 34185), (20, 34305), (30, 34446), (33, 34488), (35, 34536), (36, 34542), (37, 34590), (49, 34776), (54, 34812), (56, 34836), (59, 34851),

Gene: Ruchi_53 Start: 34383, Stop: 35111, Start Num: 10

Candidate Starts for Ruchi_53:

(Start: 10 @34383 has 27 MA's), (17, 34461), (18, 34506), (21, 34572), (24, 34605), (26, 34611), (27, 34641), (29, 34686), (30, 34698), (35, 34788), (36, 34794), (52, 35055), (56, 35088),

Gene: Shen_53 Start: 33485, Stop: 34216, Start Num: 10

Candidate Starts for Shen_53:

(Start: 10 @33485 has 27 MA's), (16, 33554), (18, 33608), (21, 33674), (24, 33707), (29, 33788), (31, 33833), (35, 33890), (36, 33896), (38, 33971), (45, 34067), (46, 34070), (54, 34166), (56, 34190), (57, 34199),

Gene: StuartMinion_47 Start: 30988, Stop: 31722, Start Num: 9

Candidate Starts for StuartMinion_47:

(Start: 9 @30988 has 16 MA's), (12, 31036), (14, 31048), (35, 31399), (36, 31405), (37, 31453), (47, 31588), (49, 31639), (54, 31675), (56, 31699), (59, 31714),

Gene: TaylorSipht_55 Start: 34807, Stop: 35535, Start Num: 10

Candidate Starts for TaylorSipht_55:

(Start: 10 @34807 has 27 MA's), (18, 34930), (21, 34996), (24, 35029), (26, 35035), (29, 35110), (31, 35155), (35, 35212), (36, 35218), (37, 35266), (47, 35401), (55, 35506), (56, 35512),

Gene: Toad24_56 Start: 35625, Stop: 36356, Start Num: 10

Candidate Starts for Toad24_56:

(Start: 10 @35625 has 27 MA's), (16, 35694), (18, 35748), (21, 35814), (24, 35847), (29, 35928), (31, 35973), (35, 36030), (36, 36036), (38, 36111), (45, 36207), (46, 36210), (54, 36306), (56, 36330), (57, 36339),

Gene: Vulpecula_53 Start: 34043, Stop: 34771, Start Num: 10

Candidate Starts for Vulpecula_53:

(Start: 10 @34043 has 27 MA's), (17, 34121), (18, 34166), (21, 34232), (24, 34265), (26, 34271), (27, 34301), (29, 34346), (30, 34358), (35, 34448), (36, 34454), (52, 34715), (56, 34748),

Gene: Westrich_64 Start: 35809, Stop: 36540, Start Num: 10

Candidate Starts for Westrich_64:

(Start: 10 @35809 has 27 MA's), (16, 35878), (18, 35932), (21, 35998), (24, 36031), (29, 36112), (31, 36157), (35, 36214), (36, 36220), (38, 36295), (45, 36391), (46, 36394), (54, 36490), (56, 36514), (57, 36523),

Gene: WheatThin_1 Start: 139, Stop: 792, Start Num: 15

Candidate Starts for WheatThin_1:

(Start: 15 @139 has 15 MA's), (20, 250), (25, 301), (31, 424), (32, 427), (36, 481), (40, 574), (42, 613), (43, 640), (44, 646), (50, 724), (58, 781),

Gene: WileyE_55 Start: 34797, Stop: 35525, Start Num: 10

Candidate Starts for WileyE_55:

(Start: 10 @34797 has 27 MA's), (17, 34875), (18, 34920), (21, 34986), (24, 35019), (27, 35055), (29, 35100), (30, 35112), (31, 35145), (35, 35202), (36, 35208), (37, 35256), (56, 35502),

Gene: Zhuangyuan_58 Start: 34701, Stop: 35435, Start Num: 9

Candidate Starts for Zhuangyuan_58:

(Start: 9 @34701 has 16 MA's), (12, 34749), (13, 34755), (17, 34788), (20, 34881), (32, 35058), (35, 35112), (36, 35118), (37, 35166), (41, 35217), (44, 35283), (54, 35388), (56, 35412), (59, 35427),

Gene: Zixiang_53 Start: 34989, Stop: 35720, Start Num: 10

Candidate Starts for Zixiang_53:

(Start: 10 @34989 has 27 MA's), (16, 35058), (18, 35112), (21, 35178), (24, 35211), (29, 35292), (31, 35337), (35, 35394), (36, 35400), (38, 35475), (45, 35571), (46, 35574), (54, 35670), (56, 35694), (57, 35703),