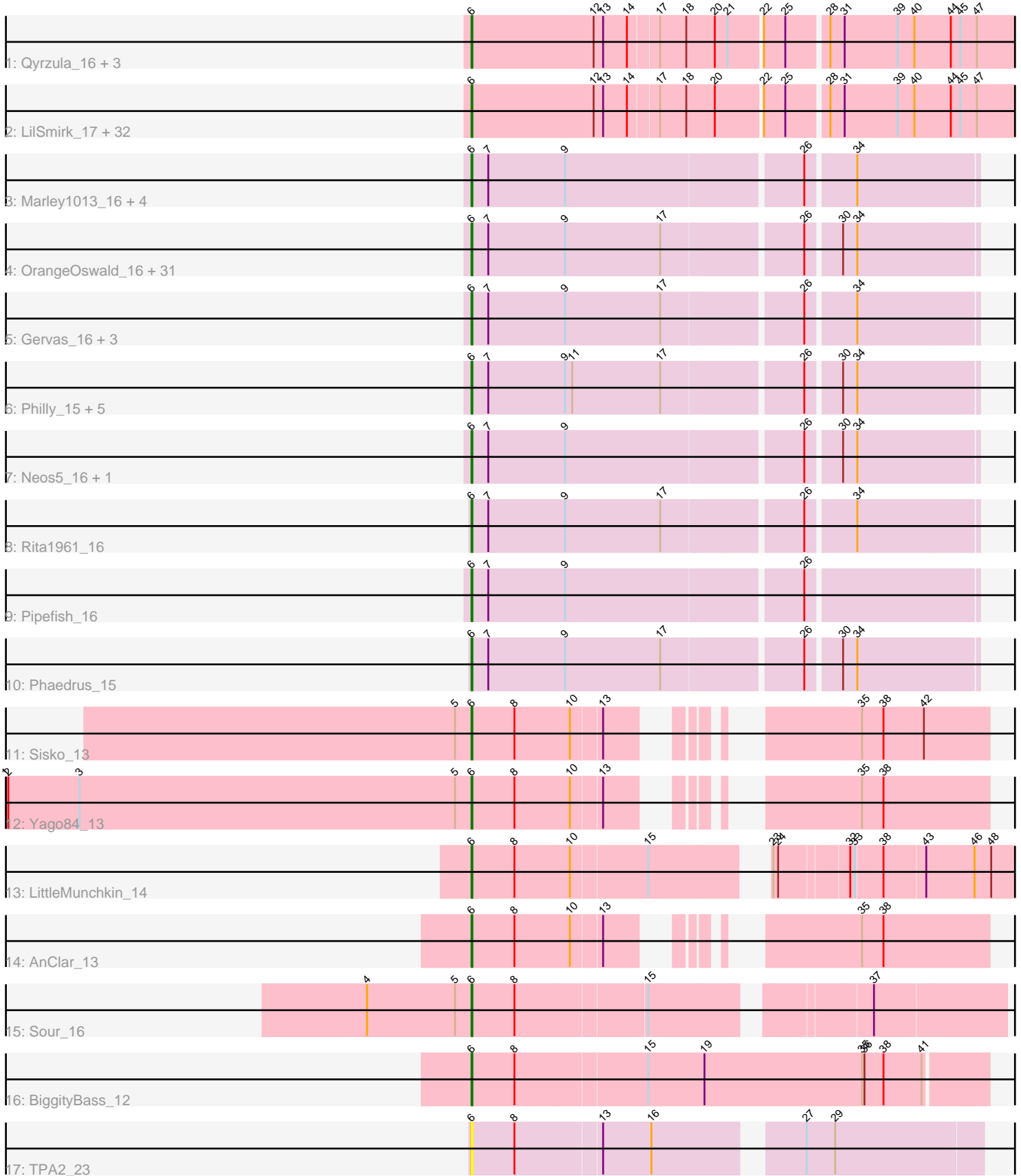


# Pham 200154



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 200154 Report

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

Pham number 200154 has 96 members, 13 are drafts.

Phages represented in each track:

- Track 1 : Qyrzula\_16, Arbitr\_17, MasterPo\_17, Lephleur\_17
- Track 2 : LilSmirk\_17, Godines\_17, Brownie5\_17, Boyle\_17, LizLemon\_17, Kheth\_17, Kolhan\_17, Tres\_17, Rhinoforte\_17, Opia\_17, Ares\_17, Faze9\_17, Eaglehorse\_17, Rosebush\_17, Glass\_17, ItsyBitsy1\_17, Allegro\_17, Sabella\_17, Laurie\_17, FrenchFry\_17, Bananafish\_17, Vic9\_18, West99\_17, Tinciduntolum\_18, Blocker23\_17, Lars\_17, Holeinone\_17, Hedgerow\_17, Kaleb\_17, Phantasmagoria\_17, TA17A\_17, Calamitous\_17, Coffee\_17
- Track 3 : Marley1013\_16, Akoma\_16, Bernardo\_16, Yahalom\_16, Morty007\_16
- Track 4 : OrangeOswald\_16, Jackstina\_15, Ben11\_15, Phlyer\_16, Yinz\_16, Tydolla\_16, SynergyX\_16, LestyG\_16, Corofin\_16, Briakila\_16, TinyTerror\_16, Heathcliff\_16, RagingRooster\_16, Baloo\_16, Abinghost\_16, Gadget\_17, Glubnar\_16, Chentzyk\_15, Deenasa\_16, Audrey\_16, Devonte\_16, Kronus\_15, Halfpint\_15, Obutu\_16, MmasiCarm\_16, SlippinJimmy\_16, Phayeta\_16, Athena\_17, Daisy\_16, RomaT\_16, Kamiyu\_16, Nozo\_16
- Track 5 : Gervas\_16, GlenHope\_17, Mortcellus\_15, ChaChing\_16
- Track 6 : Philly\_15, HarveySr\_16, SwainyDoc\_16, Casbah\_15, Chandler\_16, Compostia\_17
- Track 7 : Neos5\_16, Chalmers\_16
- Track 8 : Rita1961\_16
- Track 9 : Pipefish\_16
- Track 10 : Phaedruss\_15
- Track 11 : Sisko\_13
- Track 12 : Yago84\_13
- Track 13 : LittleMunchkin\_14
- Track 14 : AnClar\_13
- Track 15 : Sour\_16
- Track 16 : BiggityBass\_12
- Track 17 : TPA2\_23

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

The start number called the most often in the published annotations is 6, it was called in 83 of the 83 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Abinghost\_16, Akoma\_16, Allegro\_17, AnClar\_13, Arbiter\_17, Ares\_17, Athena\_17, Audrey\_16, Baloo\_16, Bananafish\_17, Ben11\_15, Bernardo\_16, BiggityBass\_12, Blocker23\_17, Boyle\_17, Briakila\_16, Brownie5\_17, Calamitous\_17, Casbah\_15, ChaChing\_16, Chalmers\_16, Chandler\_16, Chentzyk\_15, Coffee\_17, Compostia\_17, Corofin\_16, Daisy\_16, Deenasa\_16, Devonte\_16, Eaglehorse\_17, Faze9\_17, FrenchFry\_17, Gadget\_17, Gervas\_16, Glass\_17, GlenHope\_17, Glubnar\_16, Godines\_17, Halfpint\_15, HarveySr\_16, Heathcliff\_16, Hedgerow\_17, Holeinone\_17, ItsyBitsy1\_17, Jackstina\_15, Kaleb\_17, Kamiyu\_16, Kheth\_17, Kolhan\_17, Kronus\_15, Lars\_17, Laurie\_17, Lephleur\_17, LestyG\_16, LilSmirk\_17, LittleMunchkin\_14, LizLemon\_17, Marley1013\_16, MasterPo\_17, MmasiCarm\_16, Mortcellus\_15, Morty007\_16, Neos5\_16, Nozo\_16, Obutu\_16, Opia\_17, OrangeOswald\_16, Phaedrus\_15, Phantasmagoria\_17, Phayeta\_16, Philly\_15, Phlyer\_16, Pipefish\_16, Qyrzula\_16, RagingRooster\_16, Rhinoforte\_17, Rita1961\_16, RomaT\_16, Rosebush\_17, Sabella\_17, Sisko\_13, SlippinJimmy\_16, Sour\_16, SwainyDoc\_16, SynergyX\_16, TA17A\_17, TPA2\_23, Tinciduntolum\_18, TinyTerror\_16, Tres\_17, Tydolla\_16, Vic9\_18, West99\_17, Yago84\_13, Yahalom\_16, Yinz\_16,

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

- 

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

- 

### Summary by start number:

Start 6:

- Found in 96 of 96 ( 100.0% ) of genes in pham
- Manual Annotations of this start: 83 of 83
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Abinghost\_16 (B3), Akoma\_16 (B3), Allegro\_17 (B2), AnClar\_13 (DR), Arbiter\_17 (B2), Ares\_17 (B2), Athena\_17 (B3), Audrey\_16 (B3), Baloo\_16 (B3), Bananafish\_17 (B2), Ben11\_15 (B3), Bernardo\_16 (B3), BiggityBass\_12 (DR), Blocker23\_17 (B2), Boyle\_17 (B2), Briakila\_16 (B3), Brownie5\_17 (B2), Calamitous\_17 (B2), Casbah\_15 (B3), ChaChing\_16 (B3), Chalmers\_16 (B3), Chandler\_16 (B3), Chentzyk\_15 (B3), Coffee\_17 (B2), Compostia\_17 (B3), Corofin\_16 (B3), Daisy\_16 (B3), Deenasa\_16 (B3), Devonte\_16 (B3), Eaglehorse\_17 (B2), Faze9\_17 (B2), FrenchFry\_17 (B2), Gadget\_17 (B3), Gervas\_16 (B3), Glass\_17 (B2), GlenHope\_17 (B3), Glubnar\_16 (B3), Godines\_17 (B2), Halfpint\_15 (B3), HarveySr\_16 (B3), Heathcliff\_16 (B3), Hedgerow\_17 (B2), Holeinone\_17 (B2), ItsyBitsy1\_17 (B2), Jackstina\_15 (B3), Kaleb\_17 (B2), Kamiyu\_16 (B3), Kheth\_17 (B2), Kolhan\_17 (B2), Kronus\_15 (B3), Lars\_17 (B2), Laurie\_17 (B2), Lephleur\_17 (B2), LestyG\_16 (B3), LilSmirk\_17 (B2), LittleMunchkin\_14 (DR), LizLemon\_17 (B2), Marley1013\_16 (B3), MasterPo\_17 (B2), MmasiCarm\_16 (B3), Mortcellus\_15 (B3), Morty007\_16 (B3), Neos5\_16 (B3), Nozo\_16 (B3), Obutu\_16 (B3), Opia\_17 (B2), OrangeOswald\_16 (B3), Phaedrus\_15 (B3), Phantasmagoria\_17 (B2), Phayeta\_16 (B3), Philly\_15 (B3), Phlyer\_16 (B3), Pipefish\_16 (B3), Qyrzula\_16 (B2), RagingRooster\_16 (B3), Rhinoforte\_17 (B2), Rita1961\_16 (B3), RomaT\_16 (B3), Rosebush\_17 (B2), Sabella\_17 (B2), Sisko\_13 (DR), SlippinJimmy\_16 (B3), Sour\_16 (DR), SwainyDoc\_16 (B3), SynergyX\_16 (B3), TA17A\_17 (B2), TPA2\_23 (singleton), Tinciduntolum\_18 (B2), TinyTerror\_16 (B3), Tres\_17 (B2), Tydolla\_16 (B3), Vic9\_18 (B2), West99\_17 (B2), Yago84\_13 (DR), Yahalom\_16 (B3), Yinz\_16

(B3),

### **Summary by clusters:**

There are 4 clusters represented in this pham: singleton, DR, B2, B3,

Info for manual annotations of cluster B2:

- Start number 6 was manually annotated 32 times for cluster B2.

Info for manual annotations of cluster B3:

- Start number 6 was manually annotated 45 times for cluster B3.

Info for manual annotations of cluster DR:

- Start number 6 was manually annotated 6 times for cluster DR.

### **Gene Information:**

Gene: Abinghost\_16 Start: 13964, Stop: 14569, Start Num: 6

Candidate Starts for Abinghost\_16:

(Start: 6 @13964 has 83 MA's), (7, 13985), (9, 14081), (17, 14201), (26, 14363), (30, 14402), (34, 14420),

Gene: Akoma\_16 Start: 13964, Stop: 14569, Start Num: 6

Candidate Starts for Akoma\_16:

(Start: 6 @13964 has 83 MA's), (7, 13985), (9, 14081), (26, 14363), (34, 14420),

Gene: Allegro\_17 Start: 15353, Stop: 16102, Start Num: 6

Candidate Starts for Allegro\_17:

(Start: 6 @15353 has 83 MA's), (12, 15506), (13, 15518), (14, 15548), (17, 15584), (18, 15617), (20, 15650), (22, 15704), (25, 15731), (28, 15779), (31, 15797), (39, 15863), (40, 15884), (44, 15929), (45, 15941), (47, 15962),

Gene: AnClar\_13 Start: 13251, Stop: 13772, Start Num: 6

Candidate Starts for AnClar\_13:

(Start: 6 @13251 has 83 MA's), (8, 13305), (10, 13374), (13, 13410), (35, 13617), (38, 13644),

Gene: Arbiter\_17 Start: 15440, Stop: 16189, Start Num: 6

Candidate Starts for Arbiter\_17:

(Start: 6 @15440 has 83 MA's), (12, 15593), (13, 15605), (14, 15635), (17, 15671), (18, 15704), (20, 15737), (21, 15752), (22, 15791), (25, 15818), (28, 15866), (31, 15884), (39, 15950), (40, 15971), (44, 16016), (45, 16028), (47, 16049),

Gene: Ares\_17 Start: 15353, Stop: 16102, Start Num: 6

Candidate Starts for Ares\_17:

(Start: 6 @15353 has 83 MA's), (12, 15506), (13, 15518), (14, 15548), (17, 15584), (18, 15617), (20, 15650), (22, 15704), (25, 15731), (28, 15779), (31, 15797), (39, 15863), (40, 15884), (44, 15929), (45, 15941), (47, 15962),

Gene: Athena\_17 Start: 14727, Stop: 15332, Start Num: 6

Candidate Starts for Athena\_17:

(Start: 6 @14727 has 83 MA's), (7, 14748), (9, 14844), (17, 14964), (26, 15126), (30, 15165), (34, 15183),

Gene: Audrey\_16 Start: 13964, Stop: 14569, Start Num: 6

Candidate Starts for Audrey\_16:

(Start: 6 @13964 has 83 MA's), (7, 13985), (9, 14081), (17, 14201), (26, 14363), (30, 14402), (34, 14420),

Gene: Baloo\_16 Start: 13964, Stop: 14569, Start Num: 6

Candidate Starts for Baloo\_16:

(Start: 6 @13964 has 83 MA's), (7, 13985), (9, 14081), (17, 14201), (26, 14363), (30, 14402), (34, 14420),

Gene: Bananafish\_17 Start: 15350, Stop: 16099, Start Num: 6

Candidate Starts for Bananafish\_17:

(Start: 6 @15350 has 83 MA's), (12, 15503), (13, 15515), (14, 15545), (17, 15581), (18, 15614), (20, 15647), (22, 15701), (25, 15728), (28, 15776), (31, 15794), (39, 15860), (40, 15881), (44, 15926), (45, 15938), (47, 15959),

Gene: Ben11\_15 Start: 13788, Stop: 14393, Start Num: 6

Candidate Starts for Ben11\_15:

(Start: 6 @13788 has 83 MA's), (7, 13809), (9, 13905), (17, 14025), (26, 14187), (30, 14226), (34, 14244),

Gene: Bernardo\_16 Start: 13963, Stop: 14568, Start Num: 6

Candidate Starts for Bernardo\_16:

(Start: 6 @13963 has 83 MA's), (7, 13984), (9, 14080), (26, 14362), (34, 14419),

Gene: BiggityBass\_12 Start: 12234, Stop: 12866, Start Num: 6

Candidate Starts for BiggityBass\_12:

(Start: 6 @12234 has 83 MA's), (8, 12288), (15, 12450), (19, 12519), (35, 12717), (36, 12720), (38, 12744), (41, 12792),

Gene: Blocker23\_17 Start: 15470, Stop: 16219, Start Num: 6

Candidate Starts for Blocker23\_17:

(Start: 6 @15470 has 83 MA's), (12, 15623), (13, 15635), (14, 15665), (17, 15701), (18, 15734), (20, 15767), (22, 15821), (25, 15848), (28, 15896), (31, 15914), (39, 15980), (40, 16001), (44, 16046), (45, 16058), (47, 16079),

Gene: Boyle\_17 Start: 15471, Stop: 16220, Start Num: 6

Candidate Starts for Boyle\_17:

(Start: 6 @15471 has 83 MA's), (12, 15624), (13, 15636), (14, 15666), (17, 15702), (18, 15735), (20, 15768), (22, 15822), (25, 15849), (28, 15897), (31, 15915), (39, 15981), (40, 16002), (44, 16047), (45, 16059), (47, 16080),

Gene: Briakila\_16 Start: 14729, Stop: 15334, Start Num: 6

Candidate Starts for Briakila\_16:

(Start: 6 @14729 has 83 MA's), (7, 14750), (9, 14846), (17, 14966), (26, 15128), (30, 15167), (34, 15185),

Gene: Brownie5\_17 Start: 15470, Stop: 16219, Start Num: 6

Candidate Starts for Brownie5\_17:

(Start: 6 @15470 has 83 MA's), (12, 15623), (13, 15635), (14, 15665), (17, 15701), (18, 15734), (20, 15767), (22, 15821), (25, 15848), (28, 15896), (31, 15914), (39, 15980), (40, 16001), (44, 16046), (45, 16058), (47, 16079),

Gene: Calamitous\_17 Start: 15350, Stop: 16099, Start Num: 6

Candidate Starts for Calamitous\_17:

(Start: 6 @15350 has 83 MA's), (12, 15503), (13, 15515), (14, 15545), (17, 15581), (18, 15614), (20, 15647), (22, 15701), (25, 15728), (28, 15776), (31, 15794), (39, 15860), (40, 15881), (44, 15926), (45, 15938), (47, 15959),

Gene: Casbah\_15 Start: 13816, Stop: 14421, Start Num: 6

Candidate Starts for Casbah\_15:

(Start: 6 @13816 has 83 MA's), (7, 13837), (9, 13933), (11, 13942), (17, 14053), (26, 14215), (30, 14254), (34, 14272),

Gene: ChaChing\_16 Start: 13979, Stop: 14584, Start Num: 6

Candidate Starts for ChaChing\_16:

(Start: 6 @13979 has 83 MA's), (7, 14000), (9, 14096), (17, 14216), (26, 14378), (34, 14435),

Gene: Chalmers\_16 Start: 14772, Stop: 15377, Start Num: 6

Candidate Starts for Chalmers\_16:

(Start: 6 @14772 has 83 MA's), (7, 14793), (9, 14889), (26, 15171), (30, 15210), (34, 15228),

Gene: Chandler\_16 Start: 14738, Stop: 15343, Start Num: 6

Candidate Starts for Chandler\_16:

(Start: 6 @14738 has 83 MA's), (7, 14759), (9, 14855), (11, 14864), (17, 14975), (26, 15137), (30, 15176), (34, 15194),

Gene: Chentzyk\_15 Start: 13834, Stop: 14439, Start Num: 6

Candidate Starts for Chentzyk\_15:

(Start: 6 @13834 has 83 MA's), (7, 13855), (9, 13951), (17, 14071), (26, 14233), (30, 14272), (34, 14290),

Gene: Coffee\_17 Start: 15467, Stop: 16216, Start Num: 6

Candidate Starts for Coffee\_17:

(Start: 6 @15467 has 83 MA's), (12, 15620), (13, 15632), (14, 15662), (17, 15698), (18, 15731), (20, 15764), (22, 15818), (25, 15845), (28, 15893), (31, 15911), (39, 15977), (40, 15998), (44, 16043), (45, 16055), (47, 16076),

Gene: Compostia\_17 Start: 14397, Stop: 15002, Start Num: 6

Candidate Starts for Compostia\_17:

(Start: 6 @14397 has 83 MA's), (7, 14418), (9, 14514), (11, 14523), (17, 14634), (26, 14796), (30, 14835), (34, 14853),

Gene: Corofin\_16 Start: 13989, Stop: 14594, Start Num: 6

Candidate Starts for Corofin\_16:

(Start: 6 @13989 has 83 MA's), (7, 14010), (9, 14106), (17, 14226), (26, 14388), (30, 14427), (34, 14445),

Gene: Daisy\_16 Start: 13985, Stop: 14590, Start Num: 6

Candidate Starts for Daisy\_16:

(Start: 6 @13985 has 83 MA's), (7, 14006), (9, 14102), (17, 14222), (26, 14384), (30, 14423), (34, 14441),

Gene: Deenasa\_16 Start: 14727, Stop: 15332, Start Num: 6

Candidate Starts for Deenasa\_16:

(Start: 6 @14727 has 83 MA's), (7, 14748), (9, 14844), (17, 14964), (26, 15126), (30, 15165), (34, 15183),

Gene: Devonte\_16 Start: 13964, Stop: 14569, Start Num: 6

Candidate Starts for Devonte\_16:

(Start: 6 @13964 has 83 MA's), (7, 13985), (9, 14081), (17, 14201), (26, 14363), (30, 14402), (34, 14420),

Gene: Eaglehorse\_17 Start: 15374, Stop: 16123, Start Num: 6

Candidate Starts for Eaglehorse\_17:

(Start: 6 @15374 has 83 MA's), (12, 15527), (13, 15539), (14, 15569), (17, 15605), (18, 15638), (20, 15671), (22, 15725), (25, 15752), (28, 15800), (31, 15818), (39, 15884), (40, 15905), (44, 15950), (45, 15962), (47, 15983),

Gene: Faze9\_17 Start: 15467, Stop: 16216, Start Num: 6

Candidate Starts for Faze9\_17:

(Start: 6 @15467 has 83 MA's), (12, 15620), (13, 15632), (14, 15662), (17, 15698), (18, 15731), (20, 15764), (22, 15818), (25, 15845), (28, 15893), (31, 15911), (39, 15977), (40, 15998), (44, 16043), (45, 16055), (47, 16076),

Gene: FrenchFry\_17 Start: 15470, Stop: 16219, Start Num: 6

Candidate Starts for FrenchFry\_17:

(Start: 6 @15470 has 83 MA's), (12, 15623), (13, 15635), (14, 15665), (17, 15701), (18, 15734), (20, 15767), (22, 15821), (25, 15848), (28, 15896), (31, 15914), (39, 15980), (40, 16001), (44, 16046), (45, 16058), (47, 16079),

Gene: Gadget\_17 Start: 13968, Stop: 14573, Start Num: 6

Candidate Starts for Gadget\_17:

(Start: 6 @13968 has 83 MA's), (7, 13989), (9, 14085), (17, 14205), (26, 14367), (30, 14406), (34, 14424),

Gene: Gervas\_16 Start: 13947, Stop: 14552, Start Num: 6

Candidate Starts for Gervas\_16:

(Start: 6 @13947 has 83 MA's), (7, 13968), (9, 14064), (17, 14184), (26, 14346), (34, 14403),

Gene: Glass\_17 Start: 15470, Stop: 16219, Start Num: 6

Candidate Starts for Glass\_17:

(Start: 6 @15470 has 83 MA's), (12, 15623), (13, 15635), (14, 15665), (17, 15701), (18, 15734), (20, 15767), (22, 15821), (25, 15848), (28, 15896), (31, 15914), (39, 15980), (40, 16001), (44, 16046), (45, 16058), (47, 16079),

Gene: GlenHope\_17 Start: 13954, Stop: 14559, Start Num: 6

Candidate Starts for GlenHope\_17:

(Start: 6 @13954 has 83 MA's), (7, 13975), (9, 14071), (17, 14191), (26, 14353), (34, 14410),

Gene: Glubnar\_16 Start: 13968, Stop: 14573, Start Num: 6

Candidate Starts for Glubnar\_16:

(Start: 6 @13968 has 83 MA's), (7, 13989), (9, 14085), (17, 14205), (26, 14367), (30, 14406), (34, 14424),

Gene: Godines\_17 Start: 15353, Stop: 16102, Start Num: 6

Candidate Starts for Godines\_17:

(Start: 6 @15353 has 83 MA's), (12, 15506), (13, 15518), (14, 15548), (17, 15584), (18, 15617), (20, 15650), (22, 15704), (25, 15731), (28, 15779), (31, 15797), (39, 15863), (40, 15884), (44, 15929), (45, 15941), (47, 15962),

Gene: Halfpint\_15 Start: 13789, Stop: 14394, Start Num: 6

Candidate Starts for Halfpint\_15:

(Start: 6 @13789 has 83 MA's), (7, 13810), (9, 13906), (17, 14026), (26, 14188), (30, 14227), (34, 14245),

Gene: HarveySr\_16 Start: 13941, Stop: 14546, Start Num: 6

Candidate Starts for HarveySr\_16:

(Start: 6 @13941 has 83 MA's), (7, 13962), (9, 14058), (11, 14067), (17, 14178), (26, 14340), (30, 14379), (34, 14397),

Gene: Heathcliff\_16 Start: 13926, Stop: 14531, Start Num: 6

Candidate Starts for Heathcliff\_16:

(Start: 6 @13926 has 83 MA's), (7, 13947), (9, 14043), (17, 14163), (26, 14325), (30, 14364), (34, 14382),

Gene: Hedgerow\_17 Start: 15452, Stop: 16201, Start Num: 6

Candidate Starts for Hedgerow\_17:

(Start: 6 @15452 has 83 MA's), (12, 15605), (13, 15617), (14, 15647), (17, 15683), (18, 15716), (20, 15749), (22, 15803), (25, 15830), (28, 15878), (31, 15896), (39, 15962), (40, 15983), (44, 16028), (45, 16040), (47, 16061),

Gene: Holeinone\_17 Start: 15352, Stop: 16101, Start Num: 6

Candidate Starts for Holeinone\_17:

(Start: 6 @15352 has 83 MA's), (12, 15505), (13, 15517), (14, 15547), (17, 15583), (18, 15616), (20, 15649), (22, 15703), (25, 15730), (28, 15778), (31, 15796), (39, 15862), (40, 15883), (44, 15928), (45, 15940), (47, 15961),

Gene: ItsyBitsy1\_17 Start: 15344, Stop: 16093, Start Num: 6

Candidate Starts for ItsyBitsy1\_17:

(Start: 6 @15344 has 83 MA's), (12, 15497), (13, 15509), (14, 15539), (17, 15575), (18, 15608), (20, 15641), (22, 15695), (25, 15722), (28, 15770), (31, 15788), (39, 15854), (40, 15875), (44, 15920), (45, 15932), (47, 15953),

Gene: Jackstina\_15 Start: 13890, Stop: 14495, Start Num: 6

Candidate Starts for Jackstina\_15:

(Start: 6 @13890 has 83 MA's), (7, 13911), (9, 14007), (17, 14127), (26, 14289), (30, 14328), (34, 14346),

Gene: Kaleb\_17 Start: 15470, Stop: 16219, Start Num: 6

Candidate Starts for Kaleb\_17:

(Start: 6 @15470 has 83 MA's), (12, 15623), (13, 15635), (14, 15665), (17, 15701), (18, 15734), (20, 15767), (22, 15821), (25, 15848), (28, 15896), (31, 15914), (39, 15980), (40, 16001), (44, 16046), (45, 16058), (47, 16079),

Gene: Kamiyu\_16 Start: 13935, Stop: 14540, Start Num: 6

Candidate Starts for Kamiyu\_16:



(Start: 6 @13935 has 83 MA's), (7, 13956), (9, 14052), (17, 14172), (26, 14334), (30, 14373), (34, 14391),

Gene: Kheth\_17 Start: 15353, Stop: 16102, Start Num: 6

Candidate Starts for Kheth\_17:

(Start: 6 @15353 has 83 MA's), (12, 15506), (13, 15518), (14, 15548), (17, 15584), (18, 15617), (20, 15650), (22, 15704), (25, 15731), (28, 15779), (31, 15797), (39, 15863), (40, 15884), (44, 15929), (45, 15941), (47, 15962),

Gene: Kolhan\_17 Start: 15350, Stop: 16099, Start Num: 6

Candidate Starts for Kolhan\_17:

(Start: 6 @15350 has 83 MA's), (12, 15503), (13, 15515), (14, 15545), (17, 15581), (18, 15614), (20, 15647), (22, 15701), (25, 15728), (28, 15776), (31, 15794), (39, 15860), (40, 15881), (44, 15926), (45, 15938), (47, 15959),

Gene: Kronus\_15 Start: 14547, Stop: 15152, Start Num: 6

Candidate Starts for Kronus\_15:

(Start: 6 @14547 has 83 MA's), (7, 14568), (9, 14664), (17, 14784), (26, 14946), (30, 14985), (34, 15003),

Gene: Lars\_17 Start: 15470, Stop: 16219, Start Num: 6

Candidate Starts for Lars\_17:

(Start: 6 @15470 has 83 MA's), (12, 15623), (13, 15635), (14, 15665), (17, 15701), (18, 15734), (20, 15767), (22, 15821), (25, 15848), (28, 15896), (31, 15914), (39, 15980), (40, 16001), (44, 16046), (45, 16058), (47, 16079),

Gene: Laurie\_17 Start: 15348, Stop: 16097, Start Num: 6

Candidate Starts for Laurie\_17:

(Start: 6 @15348 has 83 MA's), (12, 15501), (13, 15513), (14, 15543), (17, 15579), (18, 15612), (20, 15645), (22, 15699), (25, 15726), (28, 15774), (31, 15792), (39, 15858), (40, 15879), (44, 15924), (45, 15936), (47, 15957),

Gene: Lephleur\_17 Start: 15350, Stop: 16099, Start Num: 6

Candidate Starts for Lephleur\_17:

(Start: 6 @15350 has 83 MA's), (12, 15503), (13, 15515), (14, 15545), (17, 15581), (18, 15614), (20, 15647), (21, 15662), (22, 15701), (25, 15728), (28, 15776), (31, 15794), (39, 15860), (40, 15881), (44, 15926), (45, 15938), (47, 15959),

Gene: LestyG\_16 Start: 13968, Stop: 14573, Start Num: 6

Candidate Starts for LestyG\_16:

(Start: 6 @13968 has 83 MA's), (7, 13989), (9, 14085), (17, 14205), (26, 14367), (30, 14406), (34, 14424),

Gene: LilSmirk\_17 Start: 15350, Stop: 16099, Start Num: 6

Candidate Starts for LilSmirk\_17:

(Start: 6 @15350 has 83 MA's), (12, 15503), (13, 15515), (14, 15545), (17, 15581), (18, 15614), (20, 15647), (22, 15701), (25, 15728), (28, 15776), (31, 15794), (39, 15860), (40, 15881), (44, 15926), (45, 15938), (47, 15959),

Gene: LittleMunchkin\_14 Start: 13719, Stop: 14384, Start Num: 6

Candidate Starts for LittleMunchkin\_14:

(Start: 6 @13719 has 83 MA's), (8, 13773), (10, 13842), (15, 13935), (23, 14049), (24, 14055), (32, 14136), (33, 14142), (38, 14175), (43, 14226), (46, 14286), (48, 14307),

Gene: LizLemon\_17 Start: 15470, Stop: 16219, Start Num: 6

Candidate Starts for LizLemon\_17:

(Start: 6 @15470 has 83 MA's), (12, 15623), (13, 15635), (14, 15665), (17, 15701), (18, 15734), (20, 15767), (22, 15821), (25, 15848), (28, 15896), (31, 15914), (39, 15980), (40, 16001), (44, 16046), (45, 16058), (47, 16079),

Gene: Marley1013\_16 Start: 14748, Stop: 15353, Start Num: 6

Candidate Starts for Marley1013\_16:

(Start: 6 @14748 has 83 MA's), (7, 14769), (9, 14865), (26, 15147), (34, 15204),

Gene: MasterPo\_17 Start: 15350, Stop: 16099, Start Num: 6

Candidate Starts for MasterPo\_17:

(Start: 6 @15350 has 83 MA's), (12, 15503), (13, 15515), (14, 15545), (17, 15581), (18, 15614), (20, 15647), (21, 15662), (22, 15701), (25, 15728), (28, 15776), (31, 15794), (39, 15860), (40, 15881), (44, 15926), (45, 15938), (47, 15959),

Gene: MmasiCarm\_16 Start: 13961, Stop: 14566, Start Num: 6

Candidate Starts for MmasiCarm\_16:

(Start: 6 @13961 has 83 MA's), (7, 13982), (9, 14078), (17, 14198), (26, 14360), (30, 14399), (34, 14417),

Gene: Mortcellus\_15 Start: 14602, Stop: 15207, Start Num: 6

Candidate Starts for Mortcellus\_15:

(Start: 6 @14602 has 83 MA's), (7, 14623), (9, 14719), (17, 14839), (26, 15001), (34, 15058),

Gene: Morty007\_16 Start: 14748, Stop: 15353, Start Num: 6

Candidate Starts for Morty007\_16:

(Start: 6 @14748 has 83 MA's), (7, 14769), (9, 14865), (26, 15147), (34, 15204),

Gene: Neos5\_16 Start: 14754, Stop: 15359, Start Num: 6

Candidate Starts for Neos5\_16:

(Start: 6 @14754 has 83 MA's), (7, 14775), (9, 14871), (26, 15153), (30, 15192), (34, 15210),

Gene: Nozo\_16 Start: 14729, Stop: 15334, Start Num: 6

Candidate Starts for Nozo\_16:

(Start: 6 @14729 has 83 MA's), (7, 14750), (9, 14846), (17, 14966), (26, 15128), (30, 15167), (34, 15185),

Gene: Obutu\_16 Start: 13959, Stop: 14564, Start Num: 6

Candidate Starts for Obutu\_16:

(Start: 6 @13959 has 83 MA's), (7, 13980), (9, 14076), (17, 14196), (26, 14358), (30, 14397), (34, 14415),

Gene: Opia\_17 Start: 15350, Stop: 16099, Start Num: 6

Candidate Starts for Opia\_17:

(Start: 6 @15350 has 83 MA's), (12, 15503), (13, 15515), (14, 15545), (17, 15581), (18, 15614), (20, 15647), (22, 15701), (25, 15728), (28, 15776), (31, 15794), (39, 15860), (40, 15881), (44, 15926), (45, 15938), (47, 15959),

Gene: OrangeOswald\_16 Start: 13964, Stop: 14569, Start Num: 6

Candidate Starts for OrangeOswald\_16:

(Start: 6 @13964 has 83 MA's), (7, 13985), (9, 14081), (17, 14201), (26, 14363), (30, 14402), (34, 14420),

Gene: Phaedrus\_15 Start: 13882, Stop: 14487, Start Num: 6

Candidate Starts for Phaedrus\_15:

(Start: 6 @13882 has 83 MA's), (7, 13903), (9, 13999), (17, 14119), (26, 14281), (30, 14320), (34, 14338),

Gene: Phantasmagoria\_17 Start: 15350, Stop: 16099, Start Num: 6

Candidate Starts for Phantasmagoria\_17:

(Start: 6 @15350 has 83 MA's), (12, 15503), (13, 15515), (14, 15545), (17, 15581), (18, 15614), (20, 15647), (22, 15701), (25, 15728), (28, 15776), (31, 15794), (39, 15860), (40, 15881), (44, 15926), (45, 15938), (47, 15959),

Gene: Phayeta\_16 Start: 13840, Stop: 14445, Start Num: 6

Candidate Starts for Phayeta\_16:

(Start: 6 @13840 has 83 MA's), (7, 13861), (9, 13957), (17, 14077), (26, 14239), (30, 14278), (34, 14296),

Gene: Philly\_15 Start: 13830, Stop: 14435, Start Num: 6

Candidate Starts for Philly\_15:

(Start: 6 @13830 has 83 MA's), (7, 13851), (9, 13947), (11, 13956), (17, 14067), (26, 14229), (30, 14268), (34, 14286),

Gene: Phlyer\_16 Start: 14698, Stop: 15303, Start Num: 6

Candidate Starts for Phlyer\_16:

(Start: 6 @14698 has 83 MA's), (7, 14719), (9, 14815), (17, 14935), (26, 15097), (30, 15136), (34, 15154),

Gene: Pipefish\_16 Start: 14848, Stop: 15453, Start Num: 6

Candidate Starts for Pipefish\_16:

(Start: 6 @14848 has 83 MA's), (7, 14869), (9, 14965), (26, 15247),

Gene: Qyrzula\_16 Start: 15440, Stop: 16189, Start Num: 6

Candidate Starts for Qyrzula\_16:

(Start: 6 @15440 has 83 MA's), (12, 15593), (13, 15605), (14, 15635), (17, 15671), (18, 15704), (20, 15737), (21, 15752), (22, 15791), (25, 15818), (28, 15866), (31, 15884), (39, 15950), (40, 15971), (44, 16016), (45, 16028), (47, 16049),

Gene: RagingRooster\_16 Start: 13965, Stop: 14570, Start Num: 6

Candidate Starts for RagingRooster\_16:

(Start: 6 @13965 has 83 MA's), (7, 13986), (9, 14082), (17, 14202), (26, 14364), (30, 14403), (34, 14421),

Gene: Rhinoforte\_17 Start: 15467, Stop: 16216, Start Num: 6

Candidate Starts for Rhinoforte\_17:

(Start: 6 @15467 has 83 MA's), (12, 15620), (13, 15632), (14, 15662), (17, 15698), (18, 15731), (20, 15764), (22, 15818), (25, 15845), (28, 15893), (31, 15911), (39, 15977), (40, 15998), (44, 16043), (45, 16055), (47, 16076),

Gene: Rita1961\_16 Start: 13960, Stop: 14565, Start Num: 6

Candidate Starts for Rita1961\_16:

(Start: 6 @13960 has 83 MA's), (7, 13981), (9, 14077), (17, 14197), (26, 14359), (34, 14416),

Gene: RomaT\_16 Start: 14745, Stop: 15350, Start Num: 6

Candidate Starts for RomaT\_16:

(Start: 6 @14745 has 83 MA's), (7, 14766), (9, 14862), (17, 14982), (26, 15144), (30, 15183), (34, 15201),

Gene: Rosebush\_17 Start: 15467, Stop: 16216, Start Num: 6

Candidate Starts for Rosebush\_17:

(Start: 6 @15467 has 83 MA's), (12, 15620), (13, 15632), (14, 15662), (17, 15698), (18, 15731), (20, 15764), (22, 15818), (25, 15845), (28, 15893), (31, 15911), (39, 15977), (40, 15998), (44, 16043), (45, 16055), (47, 16076),

Gene: Sabella\_17 Start: 15353, Stop: 16102, Start Num: 6

Candidate Starts for Sabella\_17:

(Start: 6 @15353 has 83 MA's), (12, 15506), (13, 15518), (14, 15548), (17, 15584), (18, 15617), (20, 15650), (22, 15704), (25, 15731), (28, 15779), (31, 15797), (39, 15863), (40, 15884), (44, 15929), (45, 15941), (47, 15962),

Gene: Sisko\_13 Start: 12759, Stop: 13280, Start Num: 6

Candidate Starts for Sisko\_13:

(5, 12738), (Start: 6 @12759 has 83 MA's), (8, 12813), (10, 12882), (13, 12918), (35, 13125), (38, 13152), (42, 13203),

Gene: SlippinJimmy\_16 Start: 14729, Stop: 15334, Start Num: 6

Candidate Starts for SlippinJimmy\_16:

(Start: 6 @14729 has 83 MA's), (7, 14750), (9, 14846), (17, 14966), (26, 15128), (30, 15167), (34, 15185),

Gene: Sour\_16 Start: 14097, Stop: 14714, Start Num: 6

Candidate Starts for Sour\_16:

(4, 13965), (5, 14076), (Start: 6 @14097 has 83 MA's), (8, 14151), (15, 14310), (37, 14553),

Gene: SwainyDoc\_16 Start: 13962, Stop: 14567, Start Num: 6

Candidate Starts for SwainyDoc\_16:

(Start: 6 @13962 has 83 MA's), (7, 13983), (9, 14079), (11, 14088), (17, 14199), (26, 14361), (30, 14400), (34, 14418),

Gene: SynergyX\_16 Start: 13965, Stop: 14570, Start Num: 6

Candidate Starts for SynergyX\_16:

(Start: 6 @13965 has 83 MA's), (7, 13986), (9, 14082), (17, 14202), (26, 14364), (30, 14403), (34, 14421),

Gene: TA17A\_17 Start: 15350, Stop: 16099, Start Num: 6

Candidate Starts for TA17A\_17:

(Start: 6 @15350 has 83 MA's), (12, 15503), (13, 15515), (14, 15545), (17, 15581), (18, 15614), (20, 15647), (22, 15701), (25, 15728), (28, 15776), (31, 15794), (39, 15860), (40, 15881), (44, 15926), (45, 15938), (47, 15959),

Gene: TPA2\_23 Start: 15116, Stop: 15712, Start Num: 6

Candidate Starts for TPA2\_23:

(Start: 6 @15116 has 83 MA's), (8, 15170), (13, 15275), (16, 15335), (27, 15494), (29, 15530),

Gene: Tinciduntolum\_18 Start: 15469, Stop: 16218, Start Num: 6

Candidate Starts for Tinciduntsum\_18:

(Start: 6 @15469 has 83 MA's), (12, 15622), (13, 15634), (14, 15664), (17, 15700), (18, 15733), (20, 15766), (22, 15820), (25, 15847), (28, 15895), (31, 15913), (39, 15979), (40, 16000), (44, 16045), (45, 16057), (47, 16078),

Gene: TinyTerror\_16 Start: 13964, Stop: 14569, Start Num: 6

Candidate Starts for TinyTerror\_16:

(Start: 6 @13964 has 83 MA's), (7, 13985), (9, 14081), (17, 14201), (26, 14363), (30, 14402), (34, 14420),

Gene: Tres\_17 Start: 15350, Stop: 16099, Start Num: 6

Candidate Starts for Tres\_17:

(Start: 6 @15350 has 83 MA's), (12, 15503), (13, 15515), (14, 15545), (17, 15581), (18, 15614), (20, 15647), (22, 15701), (25, 15728), (28, 15776), (31, 15794), (39, 15860), (40, 15881), (44, 15926), (45, 15938), (47, 15959),

Gene: Tydolla\_16 Start: 14702, Stop: 15307, Start Num: 6

Candidate Starts for Tydolla\_16:

(Start: 6 @14702 has 83 MA's), (7, 14723), (9, 14819), (17, 14939), (26, 15101), (30, 15140), (34, 15158),

Gene: Vic9\_18 Start: 15790, Stop: 16539, Start Num: 6

Candidate Starts for Vic9\_18:

(Start: 6 @15790 has 83 MA's), (12, 15943), (13, 15955), (14, 15985), (17, 16021), (18, 16054), (20, 16087), (22, 16141), (25, 16168), (28, 16216), (31, 16234), (39, 16300), (40, 16321), (44, 16366), (45, 16378), (47, 16399),

Gene: West99\_17 Start: 15470, Stop: 16219, Start Num: 6

Candidate Starts for West99\_17:

(Start: 6 @15470 has 83 MA's), (12, 15623), (13, 15635), (14, 15665), (17, 15701), (18, 15734), (20, 15767), (22, 15821), (25, 15848), (28, 15896), (31, 15914), (39, 15980), (40, 16001), (44, 16046), (45, 16058), (47, 16079),

Gene: Yago84\_13 Start: 12768, Stop: 13289, Start Num: 6

Candidate Starts for Yago84\_13:

(1, 12180), (2, 12183), (3, 12273), (5, 12747), (Start: 6 @12768 has 83 MA's), (8, 12822), (10, 12891), (13, 12927), (35, 13134), (38, 13161),

Gene: Yahalom\_16 Start: 13976, Stop: 14581, Start Num: 6

Candidate Starts for Yahalom\_16:

(Start: 6 @13976 has 83 MA's), (7, 13997), (9, 14093), (26, 14375), (34, 14432),

Gene: Yinz\_16 Start: 14003, Stop: 14608, Start Num: 6

Candidate Starts for Yinz\_16:

(Start: 6 @14003 has 83 MA's), (7, 14024), (9, 14120), (17, 14240), (26, 14402), (30, 14441), (34, 14459),