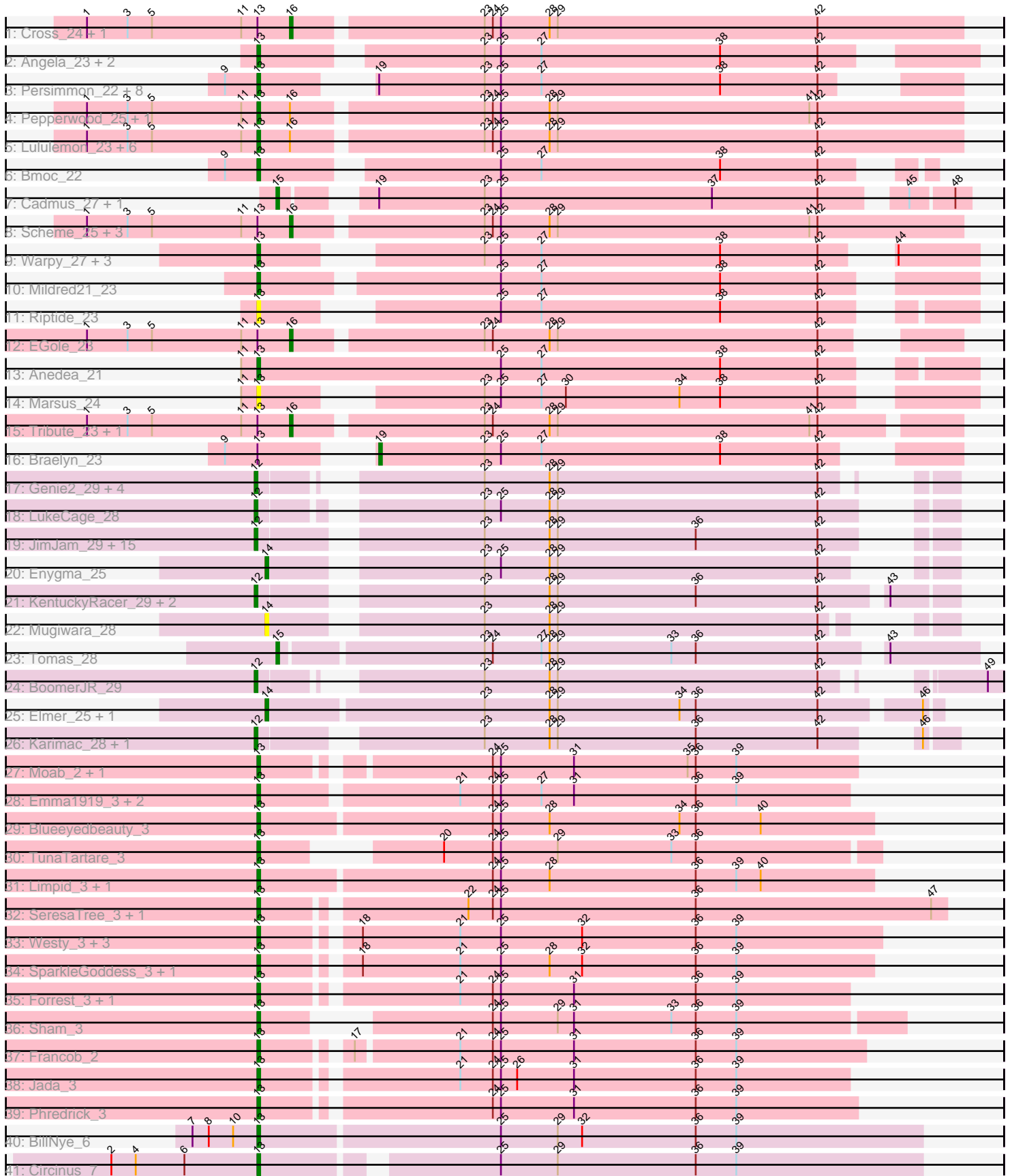


Pham 219592



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 219592 Report

This analysis was run 03/28/25 on database version 593.

Pham number 219592 has 100 members, 10 are drafts.

Phages represented in each track:

- Track 1 : Cross\_24, Peebs\_24
- Track 2 : Angela\_23, MulchMansion\_23, LilMartin\_23
- Track 3 : Persimmon\_22, NootNoot\_23, Navo\_22, Squillium\_23, WhereRU\_22, Bartholomune\_23, PinkiePie\_23, Liandry\_23, Paradiddles\_23
- Track 4 : Pepperwood\_25, Larnav\_24
- Track 5 : Lululemon\_23, BlueOtter\_24, Cursive\_22, Watermoore\_24, Leo04\_24, HangryHippo\_24, PacManQ\_23
- Track 6 : Bmoc\_22
- Track 7 : Cadmus\_27, Daubenski\_24
- Track 8 : Scheme\_25, Samisti12\_22, Shuckle\_23, Sushi23\_25
- Track 9 : Warpy\_27, Jay2Jay\_27, Evy\_24, Targaryen\_22
- Track 10 : Mildred21\_23
- Track 11 : Riptide\_23
- Track 12 : EGole\_23
- Track 13 : Anedea\_21
- Track 14 : Marsus\_24
- Track 15 : Tribute\_23, Teutsch\_23
- Track 16 : Braelyn\_23
- Track 17 : Genie2\_29, Yaboi\_30, StarPlatinum\_27, Sollertia\_29, Stanimal\_29
- Track 18 : LukeCage\_28
- Track 19 : JimJam\_29, PumpkinSpice\_28, Jollison\_28, Rikishi\_31, Wipeout\_27, Starbow\_27, Quarant19\_29, MindFlayer\_27, Battuta\_27, Birchlyn\_26, SaltySpittoon\_29, Spilled\_28, Amabiko\_29, Bordeaux\_27, TomSawyer\_27, Spelly\_29
- Track 20 : Enygma\_25
- Track 21 : KentuckyRacer\_29, CeilingFan\_28, Gibbi\_31
- Track 22 : Mugiwara\_28
- Track 23 : Tomas\_28
- Track 24 : BoomerJR\_29
- Track 25 : Elmer\_25, Wofford\_25
- Track 26 : Karimac\_28, IchabodCrane\_26
- Track 27 : Moab\_2, Patelgo\_3
- Track 28 : Emma1919\_3, MeganTheeKilla\_3, Gilson\_3
- Track 29 : Blueeyedbeauty\_3
- Track 30 : TunaTartare\_3
- Track 31 : Limpid\_3, Annadreamy\_3
- Track 32 : SeresaTree\_3, Faust\_2
- Track 33 : Westy\_3, Comrade\_3, Belfort\_3, Karp\_3

- Track 34 : SparkleGoddess\_3, Stigma\_3
- Track 35 : Forrest\_3, Kenrey\_3
- Track 36 : Sham\_3
- Track 37 : Francob\_2
- Track 38 : Jada\_3
- Track 39 : Phredrick\_3
- Track 40 : BillNye\_6
- Track 41 : Circinus\_7

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

The start number called the most often in the published annotations is 13, it was called in 51 of the 90 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Anedea\_21, Angela\_23, Annadreamy\_3, Bartholomune\_23, Belfort\_3, BillNye\_6, BlueOtter\_24, Blueeyedbeauty\_3, Bmoc\_22, Circinus\_7, Comrade\_3, Cursive\_22, Emma1919\_3, Evy\_24, Faust\_2, Forrest\_3, Francob\_2, Gilson\_3, HangryHippo\_24, Jada\_3, Jay2Jay\_27, Karp\_3, Kenrey\_3, Larnav\_24, Leo04\_24, Liandry\_23, LilMartin\_23, Limpid\_3, Lululemon\_23, Marsus\_24, MeganTheeKilla\_3, Mildred21\_23, Moab\_2, MulchMansion\_23, Navo\_22, NootNoot\_23, PacManQ\_23, Paradiddles\_23, Patelgo\_3, Pepperwood\_25, Persimmon\_22, Phredrick\_3, PinkiePie\_23, Riptide\_23, SeresaTree\_3, Sham\_3, SparkleGoddess\_3, Squillium\_23, Stigma\_3, Targaryen\_22, TunaTartare\_3, Warpy\_27, Watermoore\_24, Westy\_3, WhereRU\_22,

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

- Braelyn\_23, Cross\_24, EGole\_23, Peebs\_24, Samisti12\_22, Scheme\_25, Shuckle\_23, Sushi23\_25, Teutsch\_23, Tribute\_23,

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

- Amabiko\_29, Battuta\_27, Birchlyn\_26, BoomerJR\_29, Bordeaux\_27, Cadmus\_27, CeilingFan\_28, Daubenski\_24, Elmer\_25, Enygma\_25, Genie2\_29, Gibbi\_31, IchabodCrane\_26, JimJam\_29, Jollison\_28, Karimac\_28, KentuckyRacer\_29, LukeCage\_28, MindFlayer\_27, Mugiwara\_28, PumpkinSpice\_28, Quaran19\_29, Rikishi\_31, SaltySpittoon\_29, Sollertia\_29, Spelly\_29, Spilled\_28, Stanimal\_29, StarPlatinum\_27, Starbow\_27, TomSawyer\_27, Tomas\_28, Wipeout\_27, Wofford\_25, Yaboi\_30,

**Summary by start number:**

Start 12:

- Found in 28 of 100 ( 28.0% ) of genes in pham
- Manual Annotations of this start: 26 of 90
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Amabiko\_29 (BE2), Battuta\_27 (BE2), Birchlyn\_26 (BE2), BoomerJR\_29 (BE2), Bordeaux\_27 (BE2), CeilingFan\_28 (BE2), Genie2\_29 (BE2), Gibbi\_31 (BE2), IchabodCrane\_26 (BE2), JimJam\_29 (BE2), Jollison\_28 (BE2), Karimac\_28 (BE2), KentuckyRacer\_29 (BE2), LukeCage\_28 (BE2), MindFlayer\_27 (BE2), PumpkinSpice\_28 (BE2), Quaran19\_29 (BE2),

Rikishi\_31 (BE2), SaltySpitoon\_29 (BE2), Sollertia\_29 (BE2), Spelly\_29 (BE2), Spilled\_28 (BE2), Stanimal\_29 (BE2), StarPlatinum\_27 (BE2), Starbow\_27 (BE2), TomSawyer\_27 (BE2), Wipeout\_27 (BE2), Yaboi\_30 (BE2),

#### Start 13:

- Found in 65 of 100 ( 65.0% ) of genes in pham
- Manual Annotations of this start: 51 of 90
- Called 84.6% of time when present
- Phage (with cluster) where this start called: Anedea\_21 (BE1), Angela\_23 (BE1), Annadreamy\_3 (BK1), Bartholomune\_23 (BE1), Belfort\_3 (BK1), BillNye\_6 (BK2), BlueOtter\_24 (BE1), Blueeyedbeauty\_3 (BK1), Bmoc\_22 (BE1), Circinus\_7 (BK2), Comrade\_3 (BK1), Cursive\_22 (BE1), Emma1919\_3 (BK1), Evy\_24 (BE1), Faust\_2 (BK1), Forrest\_3 (BK1), Francob\_2 (BK1), Gilson\_3 (BK1), HangryHippo\_24 (BE1), Jada\_3 (BK1), Jay2Jay\_27 (BE1), Karp\_3 (BK1), Kenrey\_3 (BK1), Larnav\_24 (BE1), Leo04\_24 (BE1), Liandry\_23 (BE1), LilMartin\_23 (BE1), Limpid\_3 (BK1), Lululemon\_23 (BE1), Marsus\_24 (BE1), MeganTheeKilla\_3 (BK1), Mildred21\_23 (BE1), Moab\_2 (BK1), MulchMansion\_23 (BE1), Navo\_22 (BE1), NootNoot\_23 (BE1), PacManQ\_23 (BE1), Paradiddles\_23 (BE1), Patelgo\_3 (BK1), Pepperwood\_25 (BE1), Persimmon\_22 (BE1), Phredrick\_3 (BK1), PinkiePie\_23 (BE1), Riptide\_23 (BE1), SeresaTree\_3 (BK1), Sham\_3 (BK1), SparkleGoddess\_3 (BK1), Squillium\_23 (BE1), Stigma\_3 (BK1), Targaryen\_22 (BE1), TunaTartare\_3 (BK1), Warpy\_27 (BE1), Watermoore\_24 (BE1), Westy\_3 (BK1), WhereRU\_22 (BE1),

#### Start 14:

- Found in 4 of 100 ( 4.0% ) of genes in pham
- Manual Annotations of this start: 3 of 90
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Elmer\_25 (BE2), Enyigma\_25 (BE2), Mugiwara\_28 (BE2), Wofford\_25 (BE2),

#### Start 15:

- Found in 3 of 100 ( 3.0% ) of genes in pham
- Manual Annotations of this start: 2 of 90
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Cadmus\_27 (BE1), Daubenski\_24 (BE1), Tomas\_28 (BE2),

#### Start 16:

- Found in 18 of 100 ( 18.0% ) of genes in pham
- Manual Annotations of this start: 7 of 90
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Cross\_24 (BE1), EGole\_23 (BE1), Peebs\_24 (BE1), Samisti12\_22 (BE1), Scheme\_25 (BE1), Shuckle\_23 (BE1), Sushi23\_25 (BE1), Teutsch\_23 (BE1), Tribute\_23 (BE1),

#### Start 19:

- Found in 12 of 100 ( 12.0% ) of genes in pham
- Manual Annotations of this start: 1 of 90
- Called 8.3% of time when present
- Phage (with cluster) where this start called: Braelyn\_23 (BE1),

### Summary by clusters:

There are 4 clusters represented in this pham: BE2, BE1, BK1, BK2,

Info for manual annotations of cluster BE1:

- Start number 13 was manually annotated 28 times for cluster BE1.
- Start number 15 was manually annotated 1 time for cluster BE1.
- Start number 16 was manually annotated 7 times for cluster BE1.
- Start number 19 was manually annotated 1 time for cluster BE1.

Info for manual annotations of cluster BE2:

- Start number 12 was manually annotated 26 times for cluster BE2.
- Start number 14 was manually annotated 3 times for cluster BE2.
- Start number 15 was manually annotated 1 time for cluster BE2.

Info for manual annotations of cluster BK1:

- Start number 13 was manually annotated 21 times for cluster BK1.

Info for manual annotations of cluster BK2:

- Start number 13 was manually annotated 2 times for cluster BK2.

### ***Gene Information:***

Gene: Amabiko\_29 Start: 13103, Stop: 12864, Start Num: 12

Candidate Starts for Amabiko\_29:

(Start: 12 @13103 has 26 MA's), (23, 13031), (28, 13007), (29, 13004), (36, 12953), (42, 12908),

Gene: Anedea\_21 Start: 10696, Stop: 10448, Start Num: 13

Candidate Starts for Anedea\_21:

(11, 10702), (Start: 13 @10696 has 51 MA's), (25, 10606), (27, 10591), (38, 10525), (42, 10489),

Gene: Angela\_23 Start: 11461, Stop: 11222, Start Num: 13

Candidate Starts for Angela\_23:

(Start: 13 @11461 has 51 MA's), (23, 11389), (25, 11383), (27, 11368), (38, 11302), (42, 11266),

Gene: Annadreamy\_3 Start: 1146, Stop: 922, Start Num: 13

Candidate Starts for Annadreamy\_3:

(Start: 13 @1146 has 51 MA's), (24, 1062), (25, 1059), (28, 1041), (36, 987), (39, 972), (40, 963),

Gene: Bartholomune\_23 Start: 11049, Stop: 10831, Start Num: 13

Candidate Starts for Bartholomune\_23:

(9, 11061), (Start: 13 @11049 has 51 MA's), (Start: 19 @11025 has 1 MA's), (23, 10986), (25, 10980), (27, 10965), (38, 10899), (42, 10863),

Gene: Battuta\_27 Start: 13079, Stop: 12855, Start Num: 12

Candidate Starts for Battuta\_27:

(Start: 12 @13079 has 26 MA's), (23, 13007), (28, 12983), (29, 12980), (36, 12929), (42, 12884),

Gene: Belfort\_3 Start: 1094, Stop: 873, Start Num: 13

Candidate Starts for Belfort\_3:

(Start: 13 @1094 has 51 MA's), (18, 1064), (21, 1028), (25, 1013), (32, 983), (36, 941), (39, 926),

Gene: BillNye\_6 Start: 2944, Stop: 2702, Start Num: 13

Candidate Starts for BillNye\_6:

(7, 2968), (8, 2962), (10, 2953), (Start: 13 @2944 has 51 MA's), (25, 2857), (29, 2836), (32, 2827), (36, 2785), (39, 2770),

Gene: Birchlyn\_26 Start: 10960, Stop: 10721, Start Num: 12

Candidate Starts for Birchlyn\_26:

(Start: 12 @10960 has 26 MA's), (23, 10888), (28, 10864), (29, 10861), (36, 10810), (42, 10765),

Gene: BlueOtter\_24 Start: 11379, Stop: 11125, Start Num: 13

Candidate Starts for BlueOtter\_24:

(1, 11442), (3, 11427), (5, 11418), (11, 11385), (Start: 13 @11379 has 51 MA's), (Start: 16 @11367 has 7 MA's), (23, 11301), (24, 11298), (25, 11295), (28, 11277), (29, 11274), (42, 11178),

Gene: Blueeyedbeauty\_3 Start: 1146, Stop: 922, Start Num: 13

Candidate Starts for Blueeyedbeauty\_3:

(Start: 13 @1146 has 51 MA's), (24, 1062), (25, 1059), (28, 1041), (34, 993), (36, 987), (40, 963),

Gene: Bmoc\_22 Start: 11328, Stop: 11107, Start Num: 13

Candidate Starts for Bmoc\_22:

(9, 11340), (Start: 13 @11328 has 51 MA's), (25, 11250), (27, 11235), (38, 11169), (42, 11133),

Gene: BoomerJR\_29 Start: 12941, Stop: 12714, Start Num: 12

Candidate Starts for BoomerJR\_29:

(Start: 12 @12941 has 26 MA's), (23, 12875), (28, 12851), (29, 12848), (42, 12752), (49, 12719),

Gene: Bordeaux\_27 Start: 13094, Stop: 12855, Start Num: 12

Candidate Starts for Bordeaux\_27:

(Start: 12 @13094 has 26 MA's), (23, 13022), (28, 12998), (29, 12995), (36, 12944), (42, 12899),

Gene: Braelyn\_23 Start: 11069, Stop: 10875, Start Num: 19

Candidate Starts for Braelyn\_23:

(9, 11105), (Start: 13 @11093 has 51 MA's), (Start: 19 @11069 has 1 MA's), (23, 11030), (25, 11024), (27, 11009), (38, 10943), (42, 10907),

Gene: Cadmus\_27 Start: 11216, Stop: 10986, Start Num: 15

Candidate Starts for Cadmus\_27:

(Start: 15 @11216 has 2 MA's), (Start: 19 @11192 has 1 MA's), (23, 11153), (25, 11147), (37, 11069), (42, 11030), (45, 11006), (48, 10991),

Gene: CeilingFan\_28 Start: 12854, Stop: 12615, Start Num: 12

Candidate Starts for CeilingFan\_28:

(Start: 12 @12854 has 26 MA's), (23, 12782), (28, 12758), (29, 12755), (36, 12704), (42, 12659), (43, 12638),

Gene: Circinus\_7 Start: 2825, Stop: 2592, Start Num: 13

Candidate Starts for Circinus\_7:

(2, 2879), (4, 2870), (6, 2852), (Start: 13 @2825 has 51 MA's), (25, 2747), (29, 2726), (36, 2675), (39, 2660),

Gene: Comrade\_3 Start: 1095, Stop: 874, Start Num: 13

Candidate Starts for Comrade\_3:

(Start: 13 @1095 has 51 MA's), (18, 1065), (21, 1029), (25, 1014), (32, 984), (36, 942), (39, 927),

Gene: Cross\_24 Start: 11368, Stop: 11126, Start Num: 16

Candidate Starts for Cross\_24:

(1, 11443), (3, 11428), (5, 11419), (11, 11386), (Start: 13 @11380 has 51 MA's), (Start: 16 @11368 has 7 MA's), (23, 11302), (24, 11299), (25, 11296), (28, 11278), (29, 11275), (42, 11179),

Gene: Cursive\_22 Start: 10197, Stop: 9943, Start Num: 13

Candidate Starts for Cursive\_22:

(1, 10260), (3, 10245), (5, 10236), (11, 10203), (Start: 13 @10197 has 51 MA's), (Start: 16 @10185 has 7 MA's), (23, 10119), (24, 10116), (25, 10113), (28, 10095), (29, 10092), (42, 9996),

Gene: Daubenski\_24 Start: 11214, Stop: 10984, Start Num: 15

Candidate Starts for Daubenski\_24:

(Start: 15 @11214 has 2 MA's), (Start: 19 @11190 has 1 MA's), (23, 11151), (25, 11145), (37, 11067), (42, 11028), (45, 11004), (48, 10989),

Gene: EGole\_23 Start: 11616, Stop: 11392, Start Num: 16

Candidate Starts for EGole\_23:

(1, 11691), (3, 11676), (5, 11667), (11, 11634), (Start: 13 @11628 has 51 MA's), (Start: 16 @11616 has 7 MA's), (23, 11550), (24, 11547), (28, 11526), (29, 11523), (42, 11427),

Gene: Elmer\_25 Start: 11762, Stop: 11523, Start Num: 14

Candidate Starts for Elmer\_25:

(Start: 14 @11762 has 3 MA's), (23, 11684), (28, 11660), (29, 11657), (34, 11612), (36, 11606), (42, 11561), (46, 11528),

Gene: Emma1919\_3 Start: 1108, Stop: 896, Start Num: 13

Candidate Starts for Emma1919\_3:

(Start: 13 @1108 has 51 MA's), (21, 1039), (24, 1027), (25, 1024), (27, 1009), (31, 997), (36, 952), (39, 937),

Gene: Enygma\_25 Start: 12062, Stop: 11844, Start Num: 14

Candidate Starts for Enygma\_25:

(Start: 14 @12062 has 3 MA's), (23, 11993), (25, 11987), (28, 11969), (29, 11966), (42, 11870),

Gene: Evy\_24 Start: 11519, Stop: 11292, Start Num: 13

Candidate Starts for Evy\_24:

(Start: 13 @11519 has 51 MA's), (23, 11456), (25, 11450), (27, 11435), (38, 11369), (42, 11333), (44, 11321),

Gene: Faust\_2 Start: 1232, Stop: 987, Start Num: 13

Candidate Starts for Faust\_2:

(Start: 13 @1232 has 51 MA's), (22, 1163), (24, 1154), (25, 1151), (36, 1079), (47, 992),

Gene: Forrest\_3 Start: 1105, Stop: 896, Start Num: 13

Candidate Starts for Forrest\_3:

(Start: 13 @1105 has 51 MA's), (21, 1039), (24, 1027), (25, 1024), (31, 997), (36, 952), (39, 937),

Gene: Francob\_2 Start: 1107, Stop: 895, Start Num: 13

Candidate Starts for Francob\_2:

(Start: 13 @1107 has 51 MA's), (17, 1080), (21, 1044), (24, 1032), (25, 1029), (31, 1002), (36, 957), (39, 942),

Gene: Genie2\_29 Start: 12944, Stop: 12732, Start Num: 12

Candidate Starts for Genie2\_29:

(Start: 12 @12944 has 26 MA's), (23, 12878), (28, 12854), (29, 12851), (42, 12755),

Gene: Gibbi\_31 Start: 12714, Stop: 12475, Start Num: 12

Candidate Starts for Gibbi\_31:

(Start: 12 @12714 has 26 MA's), (23, 12642), (28, 12618), (29, 12615), (36, 12564), (42, 12519), (43, 12498),

Gene: Gilson\_3 Start: 1105, Stop: 896, Start Num: 13

Candidate Starts for Gilson\_3:

(Start: 13 @1105 has 51 MA's), (21, 1039), (24, 1027), (25, 1024), (27, 1009), (31, 997), (36, 952), (39, 937),

Gene: HangryHippo\_24 Start: 11379, Stop: 11125, Start Num: 13

Candidate Starts for HangryHippo\_24:

(1, 11442), (3, 11427), (5, 11418), (11, 11385), (Start: 13 @11379 has 51 MA's), (Start: 16 @11367 has 7 MA's), (23, 11301), (24, 11298), (25, 11295), (28, 11277), (29, 11274), (42, 11178),

Gene: IchabodCrane\_26 Start: 12707, Stop: 12483, Start Num: 12

Candidate Starts for IchabodCrane\_26:

(Start: 12 @12707 has 26 MA's), (23, 12635), (28, 12611), (29, 12608), (36, 12557), (42, 12512), (46, 12494),

Gene: Jada\_3 Start: 1105, Stop: 896, Start Num: 13

Candidate Starts for Jada\_3:

(Start: 13 @1105 has 51 MA's), (21, 1039), (24, 1027), (25, 1024), (26, 1018), (31, 997), (36, 952), (39, 937),

Gene: Jay2Jay\_27 Start: 11709, Stop: 11482, Start Num: 13

Candidate Starts for Jay2Jay\_27:

(Start: 13 @11709 has 51 MA's), (23, 11646), (25, 11640), (27, 11625), (38, 11559), (42, 11523), (44, 11511),

Gene: JimJam\_29 Start: 13042, Stop: 12818, Start Num: 12

Candidate Starts for JimJam\_29:

(Start: 12 @13042 has 26 MA's), (23, 12970), (28, 12946), (29, 12943), (36, 12892), (42, 12847),

Gene: Jollison\_28 Start: 13060, Stop: 12821, Start Num: 12

Candidate Starts for Jollison\_28:

(Start: 12 @13060 has 26 MA's), (23, 12988), (28, 12964), (29, 12961), (36, 12910), (42, 12865),

Gene: Karimac\_28 Start: 13110, Stop: 12886, Start Num: 12

Candidate Starts for Karimac\_28:

(Start: 12 @13110 has 26 MA's), (23, 13038), (28, 13014), (29, 13011), (36, 12960), (42, 12915), (46, 12897),

Gene: Karp\_3 Start: 1095, Stop: 874, Start Num: 13

Candidate Starts for Karp\_3:

(Start: 13 @1095 has 51 MA's), (18, 1065), (21, 1029), (25, 1014), (32, 984), (36, 942), (39, 927),

Gene: Kenrey\_3 Start: 1094, Stop: 894, Start Num: 13

Candidate Starts for Kenrey\_3:

(Start: 13 @1094 has 51 MA's), (21, 1040), (24, 1028), (25, 1025), (31, 998), (36, 953), (39, 938),



Gene: KentuckyRacer\_29 Start: 12855, Stop: 12616, Start Num: 12

Candidate Starts for KentuckyRacer\_29:

(Start: 12 @12855 has 26 MA's), (23, 12783), (28, 12759), (29, 12756), (36, 12705), (42, 12660), (43, 12639),

Gene: Larnav\_24 Start: 11380, Stop: 11126, Start Num: 13

Candidate Starts for Larnav\_24:

(1, 11443), (3, 11428), (5, 11419), (11, 11386), (Start: 13 @11380 has 51 MA's), (Start: 16 @11368 has 7 MA's), (23, 11302), (24, 11299), (25, 11296), (28, 11278), (29, 11275), (41, 11182), (42, 11179),

Gene: Leo04\_24 Start: 11378, Stop: 11124, Start Num: 13

Candidate Starts for Leo04\_24:

(1, 11441), (3, 11426), (5, 11417), (11, 11384), (Start: 13 @11378 has 51 MA's), (Start: 16 @11366 has 7 MA's), (23, 11300), (24, 11297), (25, 11294), (28, 11276), (29, 11273), (42, 11177),

Gene: Liandry\_23 Start: 11048, Stop: 10830, Start Num: 13

Candidate Starts for Liandry\_23:

(9, 11060), (Start: 13 @11048 has 51 MA's), (Start: 19 @11024 has 1 MA's), (23, 10985), (25, 10979), (27, 10964), (38, 10898), (42, 10862),

Gene: LilMartin\_23 Start: 11408, Stop: 11169, Start Num: 13

Candidate Starts for LilMartin\_23:

(Start: 13 @11408 has 51 MA's), (23, 11336), (25, 11330), (27, 11315), (38, 11249), (42, 11213),

Gene: Limpid\_3 Start: 1145, Stop: 921, Start Num: 13

Candidate Starts for Limpid\_3:

(Start: 13 @1145 has 51 MA's), (24, 1061), (25, 1058), (28, 1040), (36, 986), (39, 971), (40, 962),

Gene: LukeCage\_28 Start: 12798, Stop: 12577, Start Num: 12

Candidate Starts for LukeCage\_28:

(Start: 12 @12798 has 26 MA's), (23, 12729), (25, 12723), (28, 12705), (29, 12702), (42, 12606),

Gene: Lululemon\_23 Start: 10759, Stop: 10505, Start Num: 13

Candidate Starts for Lululemon\_23:

(1, 10822), (3, 10807), (5, 10798), (11, 10765), (Start: 13 @10759 has 51 MA's), (Start: 16 @10747 has 7 MA's), (23, 10681), (24, 10678), (25, 10675), (28, 10657), (29, 10654), (42, 10558),

Gene: Marsus\_24 Start: 11255, Stop: 11025, Start Num: 13

Candidate Starts for Marsus\_24:

(11, 11261), (Start: 13 @11255 has 51 MA's), (23, 11192), (25, 11186), (27, 11171), (30, 11162), (34, 11120), (38, 11105), (42, 11069),

Gene: MeganTheeKilla\_3 Start: 1105, Stop: 896, Start Num: 13

Candidate Starts for MeganTheeKilla\_3:

(Start: 13 @1105 has 51 MA's), (21, 1039), (24, 1027), (25, 1024), (27, 1009), (31, 997), (36, 952), (39, 937),

Gene: Mildred21\_23 Start: 11103, Stop: 10861, Start Num: 13

Candidate Starts for Mildred21\_23:

(Start: 13 @11103 has 51 MA's), (25, 11022), (27, 11007), (38, 10941), (42, 10905),

Gene: MindFlayer\_27 Start: 12713, Stop: 12474, Start Num: 12

Candidate Starts for MindFlayer\_27:

(Start: 12 @12713 has 26 MA's), (23, 12641), (28, 12617), (29, 12614), (36, 12563), (42, 12518),

Gene: Moab\_2 Start: 1056, Stop: 847, Start Num: 13

Candidate Starts for Moab\_2:

(Start: 13 @1056 has 51 MA's), (24, 981), (25, 978), (31, 951), (35, 909), (36, 906), (39, 891),

Gene: Mugiwara\_28 Start: 12446, Stop: 12231, Start Num: 14

Candidate Starts for Mugiwara\_28:

(Start: 14 @12446 has 3 MA's), (23, 12377), (28, 12353), (29, 12350), (42, 12254),

Gene: MulchMansion\_23 Start: 11409, Stop: 11170, Start Num: 13

Candidate Starts for MulchMansion\_23:

(Start: 13 @11409 has 51 MA's), (23, 11337), (25, 11331), (27, 11316), (38, 11250), (42, 11214),

Gene: Navo\_22 Start: 10856, Stop: 10629, Start Num: 13

Candidate Starts for Navo\_22:

(9, 10868), (Start: 13 @10856 has 51 MA's), (Start: 19 @10832 has 1 MA's), (23, 10793), (25, 10787), (27, 10772), (38, 10706), (42, 10670),

Gene: NootNoot\_23 Start: 11056, Stop: 10838, Start Num: 13

Candidate Starts for NootNoot\_23:

(9, 11068), (Start: 13 @11056 has 51 MA's), (Start: 19 @11032 has 1 MA's), (23, 10993), (25, 10987), (27, 10972), (38, 10906), (42, 10870),

Gene: PacManQ\_23 Start: 10759, Stop: 10505, Start Num: 13

Candidate Starts for PacManQ\_23:

(1, 10822), (3, 10807), (5, 10798), (11, 10765), (Start: 13 @10759 has 51 MA's), (Start: 16 @10747 has 7 MA's), (23, 10681), (24, 10678), (25, 10675), (28, 10657), (29, 10654), (42, 10558),

Gene: Paradiddles\_23 Start: 11047, Stop: 10829, Start Num: 13

Candidate Starts for Paradiddles\_23:

(9, 11059), (Start: 13 @11047 has 51 MA's), (Start: 19 @11023 has 1 MA's), (23, 10984), (25, 10978), (27, 10963), (38, 10897), (42, 10861),

Gene: Patelgo\_3 Start: 1056, Stop: 847, Start Num: 13

Candidate Starts for Patelgo\_3:

(Start: 13 @1056 has 51 MA's), (24, 981), (25, 978), (31, 951), (35, 909), (36, 906), (39, 891),

Gene: Peebs\_24 Start: 11347, Stop: 11123, Start Num: 16

Candidate Starts for Peebs\_24:

(1, 11422), (3, 11407), (5, 11398), (11, 11365), (Start: 13 @11359 has 51 MA's), (Start: 16 @11347 has 7 MA's), (23, 11281), (24, 11278), (25, 11275), (28, 11257), (29, 11254), (42, 11158),

Gene: Pepperwood\_25 Start: 11532, Stop: 11278, Start Num: 13

Candidate Starts for Pepperwood\_25:

(1, 11595), (3, 11580), (5, 11571), (11, 11538), (Start: 13 @11532 has 51 MA's), (Start: 16 @11520 has 7 MA's), (23, 11454), (24, 11451), (25, 11448), (28, 11430), (29, 11427), (41, 11334), (42, 11331),

Gene: Persimmon\_22 Start: 10875, Stop: 10660, Start Num: 13

Candidate Starts for Persimmon\_22:

(9, 10887), (Start: 13 @10875 has 51 MA's), (Start: 19 @10851 has 1 MA's), (23, 10812), (25, 10806), (27, 10791), (38, 10725), (42, 10689),

Gene: Phredrick\_3 Start: 1105, Stop: 893, Start Num: 13

Candidate Starts for Phredrick\_3:

(Start: 13 @1105 has 51 MA's), (24, 1027), (25, 1024), (31, 997), (36, 952), (39, 937),

Gene: PinkiePie\_23 Start: 11049, Stop: 10831, Start Num: 13

Candidate Starts for PinkiePie\_23:

(9, 11061), (Start: 13 @11049 has 51 MA's), (Start: 19 @11025 has 1 MA's), (23, 10986), (25, 10980), (27, 10965), (38, 10899), (42, 10863),

Gene: PumpkinSpice\_28 Start: 13103, Stop: 12864, Start Num: 12

Candidate Starts for PumpkinSpice\_28:

(Start: 12 @13103 has 26 MA's), (23, 13031), (28, 13007), (29, 13004), (36, 12953), (42, 12908),

Gene: Quaran19\_29 Start: 13094, Stop: 12855, Start Num: 12

Candidate Starts for Quaran19\_29:

(Start: 12 @13094 has 26 MA's), (23, 13022), (28, 12998), (29, 12995), (36, 12944), (42, 12899),

Gene: Rikishi\_31 Start: 13009, Stop: 12770, Start Num: 12

Candidate Starts for Rikishi\_31:

(Start: 12 @13009 has 26 MA's), (23, 12937), (28, 12913), (29, 12910), (36, 12859), (42, 12814),

Gene: Riptide\_23 Start: 10961, Stop: 10734, Start Num: 13

Candidate Starts for Riptide\_23:

(Start: 13 @10961 has 51 MA's), (25, 10892), (27, 10877), (38, 10811), (42, 10775),

Gene: SaltySpittoon\_29 Start: 13103, Stop: 12864, Start Num: 12

Candidate Starts for SaltySpittoon\_29:

(Start: 12 @13103 has 26 MA's), (23, 13031), (28, 13007), (29, 13004), (36, 12953), (42, 12908),

Gene: Samisti12\_22 Start: 10959, Stop: 10717, Start Num: 16

Candidate Starts for Samisti12\_22:

(1, 11034), (3, 11019), (5, 11010), (11, 10977), (Start: 13 @10971 has 51 MA's), (Start: 16 @10959 has 7 MA's), (23, 10893), (24, 10890), (25, 10887), (28, 10869), (29, 10866), (41, 10773), (42, 10770),

Gene: Scheme\_25 Start: 11531, Stop: 11289, Start Num: 16

Candidate Starts for Scheme\_25:

(1, 11606), (3, 11591), (5, 11582), (11, 11549), (Start: 13 @11543 has 51 MA's), (Start: 16 @11531 has 7 MA's), (23, 11465), (24, 11462), (25, 11459), (28, 11441), (29, 11438), (41, 11345), (42, 11342),

Gene: SeresaTree\_3 Start: 1232, Stop: 987, Start Num: 13

Candidate Starts for SeresaTree\_3:

(Start: 13 @1232 has 51 MA's), (22, 1163), (24, 1154), (25, 1151), (36, 1079), (47, 992),

Gene: Sham\_3 Start: 1234, Stop: 1022, Start Num: 13

Candidate Starts for Sham\_3:

(Start: 13 @1234 has 51 MA's), (24, 1171), (25, 1168), (29, 1147), (31, 1141), (33, 1105), (36, 1096), (39, 1081),

Gene: Shuckle\_23 Start: 11517, Stop: 11275, Start Num: 16

Candidate Starts for Shuckle\_23:

(1, 11592), (3, 11577), (5, 11568), (11, 11535), (Start: 13 @11529 has 51 MA's), (Start: 16 @11517 has 7 MA's), (23, 11451), (24, 11448), (25, 11445), (28, 11427), (29, 11424), (41, 11331), (42, 11328),

Gene: Sollertia\_29 Start: 12944, Stop: 12732, Start Num: 12

Candidate Starts for Sollertia\_29:

(Start: 12 @12944 has 26 MA's), (23, 12878), (28, 12854), (29, 12851), (42, 12755),

Gene: SparkleGoddess\_3 Start: 1091, Stop: 873, Start Num: 13

Candidate Starts for SparkleGoddess\_3:

(Start: 13 @1091 has 51 MA's), (18, 1061), (21, 1025), (25, 1010), (28, 992), (32, 980), (36, 938), (39, 923),

Gene: Spelly\_29 Start: 13058, Stop: 12819, Start Num: 12

Candidate Starts for Spelly\_29:

(Start: 12 @13058 has 26 MA's), (23, 12986), (28, 12962), (29, 12959), (36, 12908), (42, 12863),

Gene: Spilled\_28 Start: 12713, Stop: 12474, Start Num: 12

Candidate Starts for Spilled\_28:

(Start: 12 @12713 has 26 MA's), (23, 12641), (28, 12617), (29, 12614), (36, 12563), (42, 12518),

Gene: Squillium\_23 Start: 11048, Stop: 10830, Start Num: 13

Candidate Starts for Squillium\_23:

(9, 11060), (Start: 13 @11048 has 51 MA's), (Start: 19 @11024 has 1 MA's), (23, 10985), (25, 10979), (27, 10964), (38, 10898), (42, 10862),

Gene: Stanimal\_29 Start: 12944, Stop: 12732, Start Num: 12

Candidate Starts for Stanimal\_29:

(Start: 12 @12944 has 26 MA's), (23, 12878), (28, 12854), (29, 12851), (42, 12755),

Gene: StarPlatinum\_27 Start: 12696, Stop: 12475, Start Num: 12

Candidate Starts for StarPlatinum\_27:

(Start: 12 @12696 has 26 MA's), (23, 12627), (28, 12603), (29, 12600), (42, 12504),

Gene: Starbow\_27 Start: 13079, Stop: 12855, Start Num: 12

Candidate Starts for Starbow\_27:

(Start: 12 @13079 has 26 MA's), (23, 13007), (28, 12983), (29, 12980), (36, 12929), (42, 12884),

Gene: Stigma\_3 Start: 1095, Stop: 874, Start Num: 13

Candidate Starts for Stigma\_3:

(Start: 13 @1095 has 51 MA's), (18, 1065), (21, 1029), (25, 1014), (28, 996), (32, 984), (36, 942), (39, 927),

Gene: Sushi23\_25 Start: 11367, Stop: 11125, Start Num: 16

Candidate Starts for Sushi23\_25:

(1, 11442), (3, 11427), (5, 11418), (11, 11385), (Start: 13 @11379 has 51 MA's), (Start: 16 @11367 has 7 MA's), (23, 11301), (24, 11298), (25, 11295), (28, 11277), (29, 11274), (41, 11181), (42, 11178),

Gene: Targaryen\_22 Start: 11515, Stop: 11288, Start Num: 13

Candidate Starts for Targaryen\_22:

(Start: 13 @11515 has 51 MA's), (23, 11452), (25, 11446), (27, 11431), (38, 11365), (42, 11329), (44, 11317),

Gene: Teutsch\_23 Start: 10963, Stop: 10727, Start Num: 16

Candidate Starts for Teutsch\_23:

(1, 11038), (3, 11023), (5, 11014), (11, 10981), (Start: 13 @10975 has 51 MA's), (Start: 16 @10963 has 7 MA's), (23, 10897), (24, 10894), (28, 10873), (29, 10870), (41, 10777), (42, 10774),

Gene: TomSawyer\_27 Start: 12697, Stop: 12458, Start Num: 12

Candidate Starts for TomSawyer\_27:

(Start: 12 @12697 has 26 MA's), (23, 12625), (28, 12601), (29, 12598), (36, 12547), (42, 12502),

Gene: Tomas\_28 Start: 13089, Stop: 12844, Start Num: 15

Candidate Starts for Tomas\_28:

(Start: 15 @13089 has 2 MA's), (23, 13017), (24, 13014), (27, 12996), (28, 12993), (29, 12990), (33, 12948), (36, 12939), (42, 12894), (43, 12876),

Gene: Tribute\_23 Start: 11214, Stop: 10978, Start Num: 16

Candidate Starts for Tribute\_23:

(1, 11289), (3, 11274), (5, 11265), (11, 11232), (Start: 13 @11226 has 51 MA's), (Start: 16 @11214 has 7 MA's), (23, 11148), (24, 11145), (28, 11124), (29, 11121), (41, 11028), (42, 11025),

Gene: TunaTartare\_3 Start: 1216, Stop: 1013, Start Num: 13

Candidate Starts for TunaTartare\_3:

(Start: 13 @1216 has 51 MA's), (20, 1171), (24, 1153), (25, 1150), (29, 1129), (33, 1087), (36, 1078),

Gene: Warpy\_27 Start: 11729, Stop: 11502, Start Num: 13

Candidate Starts for Warpy\_27:

(Start: 13 @11729 has 51 MA's), (23, 11666), (25, 11660), (27, 11645), (38, 11579), (42, 11543), (44, 11531),

Gene: Watermoore\_24 Start: 11380, Stop: 11126, Start Num: 13

Candidate Starts for Watermoore\_24:

(1, 11443), (3, 11428), (5, 11419), (11, 11386), (Start: 13 @11380 has 51 MA's), (Start: 16 @11368 has 7 MA's), (23, 11302), (24, 11299), (25, 11296), (28, 11278), (29, 11275), (42, 11179),

Gene: Westy\_3 Start: 1095, Stop: 874, Start Num: 13

Candidate Starts for Westy\_3:

(Start: 13 @1095 has 51 MA's), (18, 1065), (21, 1029), (25, 1014), (32, 984), (36, 942), (39, 927),

Gene: WhereRU\_22 Start: 10875, Stop: 10660, Start Num: 13

Candidate Starts for WhereRU\_22:

(9, 10887), (Start: 13 @10875 has 51 MA's), (Start: 19 @10851 has 1 MA's), (23, 10812), (25, 10806), (27, 10791), (38, 10725), (42, 10689),

Gene: Wipeout\_27 Start: 12719, Stop: 12480, Start Num: 12

Candidate Starts for Wipeout\_27:

(Start: 12 @12719 has 26 MA's), (23, 12647), (28, 12623), (29, 12620), (36, 12569), (42, 12524),

Gene: Wofford\_25 Start: 11766, Stop: 11527, Start Num: 14

Candidate Starts for Wofford\_25:

(Start: 14 @11766 has 3 MA's), (23, 11688), (28, 11664), (29, 11661), (34, 11616), (36, 11610), (42, 11565), (46, 11532),

Gene: Yaboi\_30 Start: 12920, Stop: 12708, Start Num: 12

Candidate Starts for Yaboi\_30:

(Start: 12 @12920 has 26 MA's), (23, 12854), (28, 12830), (29, 12827), (42, 12731),