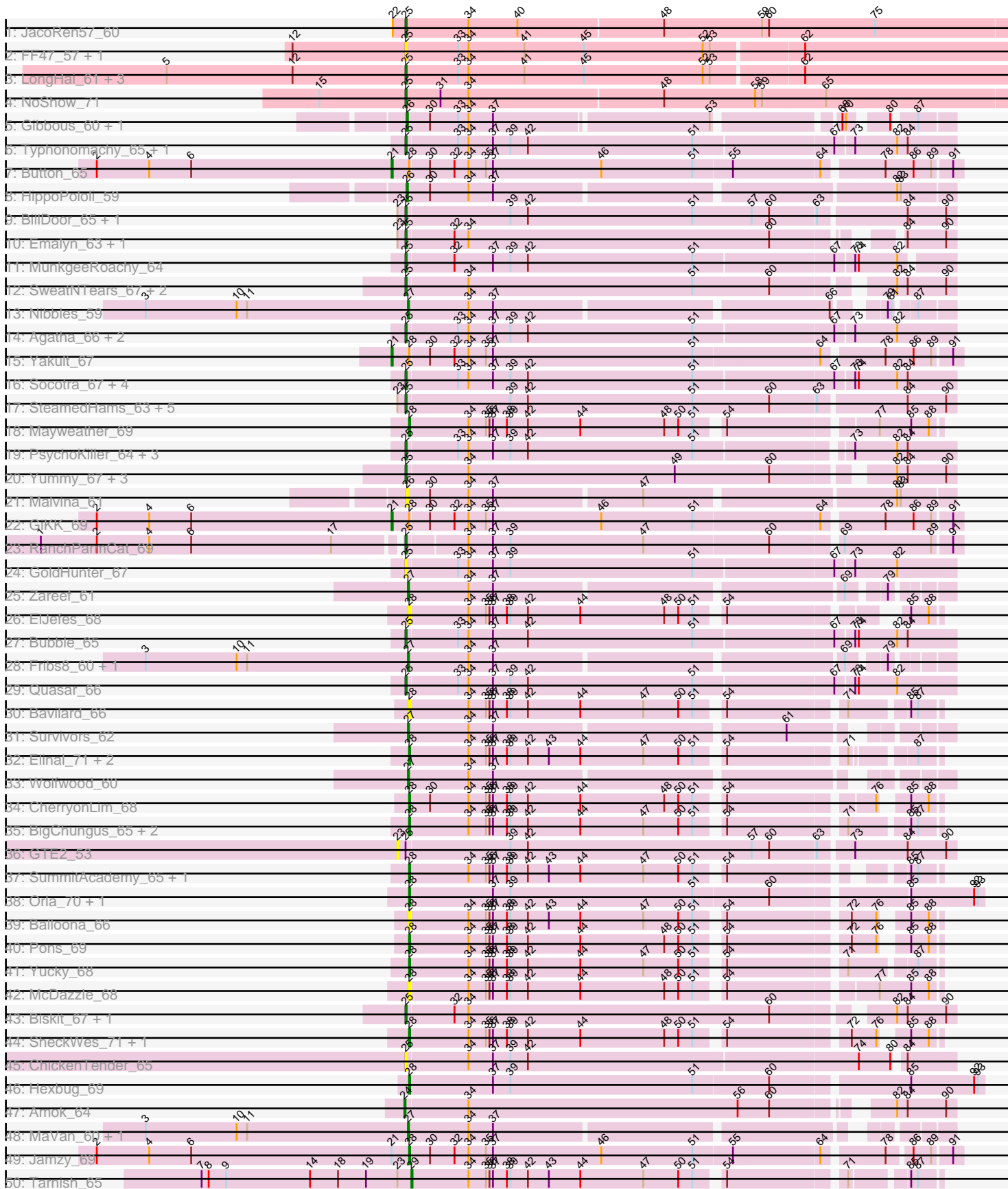


Pham 308414



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 308414 Report

This analysis was run 06/27/26 on database version 652.

Pham number 308414 has 91 members, 24 are drafts.

Phages represented in each track:

- Track 1 : JacoRen57_60
- Track 2 : FF47_57, 8UZL_59
- Track 3 : LongHai_61, Maco6_57, Salvus_61, Muddy_60
- Track 4 : NoShow_71
- Track 5 : Gibbous_60, Dre3_60
- Track 6 : Typhonmarchy_65, Starburst_67
- Track 7 : Button_65
- Track 8 : HippoPololi_59
- Track 9 : BillDoor_65, Tolls_64
- Track 10 : Emalyn_63, AikoCarson_65
- Track 11 : MunkgeeRoachy_64
- Track 12 : SweatNTears_67, Buttrmlkdreams_67, Troje_67
- Track 13 : Nibbles_59
- Track 14 : Agatha_66, Cozz_65, RADical_67
- Track 15 : Yakult_67
- Track 16 : Socotra_67, Burnsey_65, Carsonalex_69, Nina_65, RedBaron_73
- Track 17 : SteamedHams_63, CanesSauce_61, CaramelLatte_61, Yarn_59, AndPeggy_58, ChocoMunchkin_61
- Track 18 : Mayweather_69
- Track 19 : PsychoKiller_64, Axym_65, Elliott_65, Sopespian_62
- Track 20 : Yummy_67, MScarn_69, Horseradish_67, Blondies_71
- Track 21 : Malvina_61
- Track 22 : GiKK_69
- Track 23 : RanchParmCat_69
- Track 24 : GoldHunter_67
- Track 25 : Zareef_61
- Track 26 : ElJefes_68
- Track 27 : Bubble_65
- Track 28 : Fribs8_60, Wallaby_62
- Track 29 : Quasar_66
- Track 30 : Bavidard_66
- Track 31 : Survivors_62
- Track 32 : Elinal_71, KayGee_69, Lauer_60
- Track 33 : Wolfwood_60
- Track 34 : CherryonLim_68
- Track 35 : BigChungus_65, Feastonyeet_65, CocoaPuff_65
- Track 36 : GTE2_53

- Track 37 : SummitAcademy_65, PotPie_65
- Track 38 : Orla_70, Nodigi_69
- Track 39 : Balloona_66
- Track 40 : Pons_69
- Track 41 : Yucky_68
- Track 42 : McDazzle_68
- Track 43 : Biskit_67, SketchMex_65
- Track 44 : SheckWes_71, MAnor_68
- Track 45 : ChickenTender_65
- Track 46 : Hexbug_69
- Track 47 : Amok_64
- Track 48 : MaVan_60, Azira_60
- Track 49 : Jamzy_69
- Track 50 : Tarnish_65
- Track 51 : Margaret_69
- Track 52 : Vine_68
- Track 53 : Cleo_56
- Track 54 : RSchmailzl_66

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

The start number called the most often in the published annotations is 25, it was called in 32 of the 67 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- 8UZL_59, Agatha_66, AikoCarson_65, AndPeggy_58, Axym_65, BillDoor_65, Biskit_67, Blondies_71, Bubble_65, Burnsey_65, Buttrmlkdreams_67, CanesSauce_61, CaramelLatte_61, Carsonalex_69, ChickenTender_65, ChocoMunchkin_61, Cozz_65, Elliott_65, Emalyn_63, FF47_57, GoldHunter_67, Horseradish_67, JacoRen57_60, LongHai_61, MScarn_69, Maco6_57, Muddy_60, MunkgeeRoachy_64, Nina_65, NoShow_71, PsychoKiller_64, Quasar_66, RADical_67, RSchmailzl_66, RanchParmCat_69, RedBaron_73, Salvus_61, SketchMex_65, Socotra_67, Sopespian_62, Starburst_67, SteamedHams_63, SweatNTears_67, Tolls_64, Troje_67, Typhonomachy_65, Yarn_59, Yummy_67,

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

- GTE2_53, Margaret_69,

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

- Amok_64, Azira_60, Balloona_66, Bavidard_66, BigChungus_65, Button_65, CherryonLim_68, Cleo_56, CocoaPuff_65, Dre3_60, ElJefes_68, Elinal_71, Feastonyeet_65, Fribs8_60, GiKK_69, Gibbous_60, Hexbug_69, HippoPololi_59, Jamzy_69, KayGee_69, Lauer_60, MAnor_68, MaVan_60, Malvina_61, Mayweather_69, McDazzle_68, Nibbles_59, Nodigi_69, Orla_70, Pons_69, PotPie_65, SheckWes_71, SummitAcademy_65, Survivors_62, Tarnish_65, Vine_68, Wallaby_62, Wolfwood_60, Yakult_67, Yucky_68, Zareef_61,

Summary by start number:

Start 17:

- Found in 2 of 91 (2.2%) of genes in pham
- Manual Annotations of this start: 1 of 67
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Margaret_69 (CT),

Start 21:

- Found in 4 of 91 (4.4%) of genes in pham
- Manual Annotations of this start: 3 of 67
- Called 75.0% of time when present
- Phage (with cluster) where this start called: Button_65 (CT), GiKK_69 (CT), Yakult_67 (CT),

Start 23:

- Found in 12 of 91 (13.2%) of genes in pham
- No Manual Annotations of this start.
- Called 8.3% of time when present
- Phage (with cluster) where this start called: GTE2_53 (CT),

Start 24:

- Found in 1 of 91 (1.1%) of genes in pham
- Manual Annotations of this start: 1 of 67
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Amok_64 (CT),

Start 25:

- Found in 50 of 91 (54.9%) of genes in pham
- Manual Annotations of this start: 32 of 67
- Called 96.0% of time when present
- Phage (with cluster) where this start called: 8UZL_59 (AB), Agatha_66 (CT), AikoCarson_65 (CT), AndPeggy_58 (CT), Axym_65 (CT), BillDoor_65 (CT), Biskit_67 (CT), Blondies_71 (CT), Bubble_65 (CT), Burnsey_65 (CT), Buttrmlkdreams_67 (CT), CanesSauce_61 (CT), CaramelLatte_61 (CT), Carsonalex_69 (CT), ChickenTender_65 (CT), ChocoMunchkin_61 (CT), Cozz_65 (CT), Elliott_65 (CT), Emalyn_63 (CT), FF47_57 (AB), GoldHunter_67 (CT), Horseradish_67 (CT), JacoRen57_60 (AB), LongHai_61 (AB), MScarn_69 (CT), Maco6_57 (AB), Muddy_60 (AB), MunkgeeRoachy_64 (CT), Nina_65 (CT), NoShow_71 (AB), PsychoKiller_64 (CT), Quasar_66 (CT), RADical_67 (CT), RSchmailzl_66 (CT), RanchParmCat_69 (CT), RedBaron_73 (CT), Salvus_61 (AB), SketchMex_65 (CT), Socotra_67 (CT), Sopespian_62 (CT), Starburst_67 (CT), SteamedHams_63 (CT), SweatNTears_67 (CT), Tolls_64 (CT), Troje_67 (CT), Typhonmarchy_65 (CT), Yarn_59 (CT), Yummy_67 (CT),

Start 26:

- Found in 5 of 91 (5.5%) of genes in pham
- Manual Annotations of this start: 4 of 67
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Cleo_56 (CT), Dre3_60 (CT), Gibbous_60 (CT), HippoPololi_59 (CT), Malvina_61 (CT),

Start 27:

- Found in 8 of 91 (8.8%) of genes in pham
- Manual Annotations of this start: 7 of 67
- Called 100.0% of time when present

- Phage (with cluster) where this start called: Azira_60 (CT), Fribs8_60 (CT), MaVan_60 (CT), Nibbles_59 (CT), Survivors_62 (CT), Wallaby_62 (CT), Wolfwood_60 (CT), Zareef_61 (CT),

Start 28:

- Found in 26 of 91 (28.6%) of genes in pham
- Manual Annotations of this start: 18 of 67
- Called 88.5% of time when present
- Phage (with cluster) where this start called: Balloona_66 (CT), Bavidard_66 (CT), BigChungus_65 (CT), CherryonLim_68 (CT), CocoaPuff_65 (CT), ElJefes_68 (CT), Elinal_71 (CT), Feastonyeet_65 (CT), Hexbug_69 (CT), Jamzy_69 (CT), KayGee_69 (CT), Lauer_60 (CT), MAnor_68 (CT), Mayweather_69 (CT), McDazzle_68 (CT), Nodigi_69 (CT), Orla_70 (CT), Pons_69 (CT), PotPie_65 (CT), SheckWes_71 (CT), SummitAcademy_65 (CT), Vine_68 (CT), Yucky_68 (CT),

Start 29:

- Found in 1 of 91 (1.1%) of genes in pham
- Manual Annotations of this start: 1 of 67
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Tarnish_65 (CT),

Summary by clusters:

There are 2 clusters represented in this pham: AB, CT,

Info for manual annotations of cluster AB:

- Start number 25 was manually annotated 4 times for cluster AB.

Info for manual annotations of cluster CT:

- Start number 17 was manually annotated 1 time for cluster CT.
- Start number 21 was manually annotated 3 times for cluster CT.
- Start number 24 was manually annotated 1 time for cluster CT.
- Start number 25 was manually annotated 28 times for cluster CT.
- Start number 26 was manually annotated 4 times for cluster CT.
- Start number 27 was manually annotated 7 times for cluster CT.
- Start number 28 was manually annotated 18 times for cluster CT.
- Start number 29 was manually annotated 1 time for cluster CT.

Gene Information:

Gene: 8UZL_59 Start: 43761, Stop: 44429, Start Num: 25

Candidate Starts for 8UZL_59:

(12, 43665), (Start: 25 @43761 has 32 MA's), (33, 43806), (34, 43815), (41, 43863), (45, 43914), (52, 44016), (53, 44022), (62, 44097),

Gene: Agatha_66 Start: 44454, Stop: 44915, Start Num: 25

Candidate Starts for Agatha_66:

(Start: 25 @44454 has 32 MA's), (33, 44496), (34, 44505), (37, 44526), (39, 44541), (42, 44556), (51, 44697), (67, 44814), (73, 44829), (82, 44865),

Gene: AikoCarson_65 Start: 43422, Stop: 43853, Start Num: 25

Candidate Starts for AikoCarson_65:

(23, 43416), (Start: 25 @43422 has 32 MA's), (32, 43461), (34, 43473), (60, 43731), (84, 43812), (90, 43845),

Gene: Amok_64 Start: 43474, Stop: 43914, Start Num: 24

Candidate Starts for Amok_64:

(Start: 24 @43474 has 1 MA's), (34, 43525), (56, 43756), (60, 43783), (82, 43864), (84, 43873), (90, 43906),

Gene: AndPeggy_58 Start: 42434, Stop: 42895, Start Num: 25

Candidate Starts for AndPeggy_58:

(23, 42428), (Start: 25 @42434 has 32 MA's), (39, 42521), (42, 42536), (51, 42677), (60, 42743), (63, 42782), (84, 42854), (90, 42887),

Gene: Axym_65 Start: 44338, Stop: 44790, Start Num: 25

Candidate Starts for Axym_65:

(Start: 25 @44338 has 32 MA's), (33, 44380), (34, 44389), (37, 44410), (39, 44425), (42, 44440), (51, 44581), (73, 44704), (82, 44740), (84, 44749),

Gene: Azira_60 Start: 42913, Stop: 43329, Start Num: 27

Candidate Starts for Azira_60:

(3, 42688), (10, 42766), (11, 42775), (Start: 27 @42913 has 7 MA's), (34, 42964), (37, 42985),

Gene: Balloona_66 Start: 45803, Stop: 46216, Start Num: 28

Candidate Starts for Balloona_66:

(Start: 28 @45803 has 18 MA's), (34, 45851), (35, 45866), (36, 45869), (37, 45872), (38, 45884), (39, 45887), (42, 45902), (43, 45920), (44, 45947), (47, 46001), (50, 46031), (51, 46043), (54, 46061), (72, 46157), (76, 46178), (85, 46193), (88, 46208),

Gene: Bavilard_66 Start: 44813, Stop: 45232, Start Num: 28

Candidate Starts for Bavilard_66:

(Start: 28 @44813 has 18 MA's), (34, 44861), (35, 44876), (36, 44879), (37, 44882), (38, 44894), (39, 44897), (42, 44912), (44, 44957), (47, 45011), (50, 45041), (51, 45053), (54, 45071), (71, 45164), (85, 45209), (87, 45215),

Gene: BigChungus_65 Start: 44990, Stop: 45409, Start Num: 28

Candidate Starts for BigChungus_65:

(Start: 28 @44990 has 18 MA's), (34, 45038), (35, 45053), (36, 45056), (37, 45059), (38, 45071), (39, 45074), (42, 45089), (44, 45134), (47, 45188), (50, 45218), (51, 45230), (54, 45248), (71, 45341), (85, 45386), (87, 45392),

Gene: BillDoor_65 Start: 42701, Stop: 43162, Start Num: 25

Candidate Starts for BillDoor_65:

(23, 42695), (Start: 25 @42701 has 32 MA's), (39, 42788), (42, 42803), (51, 42944), (57, 42995), (60, 43010), (63, 43049), (84, 43121), (90, 43154),

Gene: Biskit_67 Start: 43973, Stop: 44419, Start Num: 25

Candidate Starts for Biskit_67:

(Start: 25 @43973 has 32 MA's), (32, 44012), (34, 44024), (60, 44282), (82, 44369), (84, 44378), (90, 44411),

Gene: Blondies_71 Start: 44292, Stop: 44738, Start Num: 25

Candidate Starts for Blondies_71:

(Start: 25 @44292 has 32 MA's), (34, 44343), (49, 44520), (60, 44601), (82, 44688), (84, 44697), (90, 44730),

Gene: Bubble_65 Start: 44384, Stop: 44845, Start Num: 25

Candidate Starts for Bubble_65:

(Start: 25 @44384 has 32 MA's), (33, 44426), (34, 44435), (37, 44456), (42, 44486), (51, 44627), (67, 44744), (73, 44759), (74, 44762), (82, 44795), (84, 44804),

Gene: Burnsey_65 Start: 44041, Stop: 44502, Start Num: 25

Candidate Starts for Burnsey_65:

(Start: 25 @44041 has 32 MA's), (33, 44083), (34, 44092), (37, 44113), (39, 44128), (42, 44143), (51, 44284), (67, 44401), (73, 44416), (74, 44419), (82, 44452), (84, 44461),

Gene: Button_65 Start: 43752, Stop: 44219, Start Num: 21

Candidate Starts for Button_65:

(2, 43500), (4, 43545), (6, 43581), (Start: 21 @43752 has 3 MA's), (Start: 28 @43767 has 18 MA's), (30, 43782), (32, 43803), (34, 43815), (35, 43830), (37, 43836), (46, 43929), (51, 44007), (55, 44040), (64, 44112), (78, 44157), (86, 44181), (89, 44196), (91, 44211),

Gene: Buttrmlkdreams_67 Start: 44142, Stop: 44588, Start Num: 25

Candidate Starts for Buttrmlkdreams_67:

(Start: 25 @44142 has 32 MA's), (34, 44193), (51, 44385), (60, 44451), (82, 44538), (84, 44547), (90, 44580),

Gene: CanesSauce_61 Start: 42595, Stop: 43056, Start Num: 25

Candidate Starts for CanesSauce_61:

(23, 42589), (Start: 25 @42595 has 32 MA's), (39, 42682), (42, 42697), (51, 42838), (60, 42904), (63, 42943), (84, 43015), (90, 43048),

Gene: Caramellatte_61 Start: 42595, Stop: 43056, Start Num: 25

Candidate Starts for Caramellatte_61:

(23, 42589), (Start: 25 @42595 has 32 MA's), (39, 42682), (42, 42697), (51, 42838), (60, 42904), (63, 42943), (84, 43015), (90, 43048),

Gene: Carsonalex_69 Start: 44520, Stop: 44981, Start Num: 25

Candidate Starts for Carsonalex_69:

(Start: 25 @44520 has 32 MA's), (33, 44562), (34, 44571), (37, 44592), (39, 44607), (42, 44622), (51, 44763), (67, 44880), (73, 44895), (74, 44898), (82, 44931), (84, 44940),

Gene: CherryonLim_68 Start: 46786, Stop: 47196, Start Num: 28

Candidate Starts for CherryonLim_68:

(Start: 28 @46786 has 18 MA's), (30, 46801), (34, 46834), (35, 46849), (36, 46852), (37, 46855), (38, 46867), (39, 46870), (42, 46885), (44, 46930), (48, 47002), (50, 47014), (51, 47026), (54, 47044), (76, 47158), (85, 47173), (88, 47188),

Gene: ChickenTender_65 Start: 43134, Stop: 43589, Start Num: 25

Candidate Starts for ChickenTender_65:

(Start: 25 @43134 has 32 MA's), (34, 43185), (37, 43206), (39, 43221), (42, 43236), (74, 43515), (80, 43542), (84, 43548),

Gene: ChocoMunchkin_61 Start: 42595, Stop: 43056, Start Num: 25

Candidate Starts for ChocoMunchkin_61:

(23, 42589), (Start: 25 @42595 has 32 MA's), (39, 42682), (42, 42697), (51, 42838), (60, 42904), (63, 42943), (84, 43015), (90, 43048),

Gene: Cleo_56 Start: 42103, Stop: 42522, Start Num: 26

Candidate Starts for Cleo_56:

(Start: 26 @42103 has 4 MA's), (30, 42121), (33, 42145), (34, 42154), (37, 42175), (53, 42355), (70, 42451), (79, 42475), (87, 42493),

Gene: CocoaPuff_65 Start: 44995, Stop: 45411, Start Num: 28

Candidate Starts for CocoaPuff_65:

(Start: 28 @44995 has 18 MA's), (34, 45043), (35, 45058), (36, 45061), (37, 45064), (38, 45076), (39, 45079), (42, 45094), (44, 45139), (47, 45193), (50, 45223), (51, 45235), (54, 45253), (71, 45346), (85, 45388), (87, 45394),

Gene: Cozz_65 Start: 44456, Stop: 44917, Start Num: 25

Candidate Starts for Cozz_65:

(Start: 25 @44456 has 32 MA's), (33, 44498), (34, 44507), (37, 44528), (39, 44543), (42, 44558), (51, 44699), (67, 44816), (73, 44831), (82, 44867),

Gene: Dre3_60 Start: 43089, Stop: 43505, Start Num: 26

Candidate Starts for Dre3_60:

(Start: 26 @43089 has 4 MA's), (30, 43107), (33, 43131), (34, 43140), (37, 43161), (53, 43338), (68, 43431), (70, 43434), (80, 43461), (87, 43476),

Gene: ElJefes_68 Start: 45669, Stop: 46073, Start Num: 28

Candidate Starts for ElJefes_68:

(Start: 28 @45669 has 18 MA's), (34, 45717), (35, 45732), (36, 45735), (37, 45738), (38, 45750), (39, 45753), (42, 45768), (44, 45813), (48, 45885), (50, 45897), (51, 45909), (54, 45927), (85, 46050), (88, 46065),

Gene: Elinal_71 Start: 46110, Stop: 46523, Start Num: 28

Candidate Starts for Elinal_71:

(Start: 28 @46110 has 18 MA's), (34, 46158), (35, 46173), (36, 46176), (37, 46179), (38, 46191), (39, 46194), (42, 46209), (43, 46227), (44, 46254), (47, 46308), (50, 46338), (51, 46350), (54, 46368), (71, 46461), (87, 46506),

Gene: Elliott_65 Start: 43934, Stop: 44386, Start Num: 25

Candidate Starts for Elliott_65:

(Start: 25 @43934 has 32 MA's), (33, 43976), (34, 43985), (37, 44006), (39, 44021), (42, 44036), (51, 44177), (73, 44300), (82, 44336), (84, 44345),

Gene: Emalyn_63 Start: 42151, Stop: 42582, Start Num: 25

Candidate Starts for Emalyn_63:

(23, 42145), (Start: 25 @42151 has 32 MA's), (32, 42190), (34, 42202), (60, 42460), (84, 42541), (90, 42574),

Gene: FF47_57 Start: 43675, Stop: 44343, Start Num: 25

Candidate Starts for FF47_57:

(12, 43579), (Start: 25 @43675 has 32 MA's), (33, 43720), (34, 43729), (41, 43777), (45, 43828), (52, 43930), (53, 43936), (62, 44011),

Gene: Feastonyeet_65 Start: 44990, Stop: 45409, Start Num: 28

Candidate Starts for Feastonyeet_65:

(Start: 28 @44990 has 18 MA's), (34, 45038), (35, 45053), (36, 45056), (37, 45059), (38, 45071), (39, 45074), (42, 45089), (44, 45134), (47, 45188), (50, 45218), (51, 45230), (54, 45248), (71, 45341), (85, 45386), (87, 45392),

Gene: Fribs8_60 Start: 43564, Stop: 43989, Start Num: 27

Candidate Starts for Fribs8_60:

(3, 43339), (10, 43417), (11, 43426), (Start: 27 @43564 has 7 MA's), (34, 43615), (37, 43636), (69, 43918), (79, 43945),

Gene: GTE2_53 Start: 43397, Stop: 43864, Start Num: 23

Candidate Starts for GTE2_53:

(23, 43397), (Start: 25 @43403 has 32 MA's), (39, 43490), (42, 43505), (57, 43697), (60, 43712), (63, 43751), (73, 43778), (84, 43823), (90, 43856),

Gene: GiKK_69 Start: 45041, Stop: 45508, Start Num: 21

Candidate Starts for GiKK_69:

(2, 44789), (4, 44834), (6, 44870), (Start: 21 @45041 has 3 MA's), (Start: 28 @45056 has 18 MA's), (30, 45071), (32, 45092), (34, 45104), (35, 45119), (37, 45125), (46, 45218), (51, 45296), (64, 45401), (78, 45446), (86, 45470), (89, 45485), (91, 45500),

Gene: Gibbous_60 Start: 43089, Stop: 43505, Start Num: 26

Candidate Starts for Gibbous_60:

(Start: 26 @43089 has 4 MA's), (30, 43107), (33, 43131), (34, 43140), (37, 43161), (53, 43338), (68, 43431), (70, 43434), (80, 43461), (87, 43476),

Gene: GoldHunter_67 Start: 44445, Stop: 44906, Start Num: 25

Candidate Starts for GoldHunter_67:

(Start: 25 @44445 has 32 MA's), (33, 44487), (34, 44496), (37, 44517), (39, 44532), (51, 44688), (67, 44805), (73, 44820), (82, 44856),

Gene: Hexbug_69 Start: 45234, Stop: 45710, Start Num: 28

Candidate Starts for Hexbug_69:

(Start: 28 @45234 has 18 MA's), (37, 45303), (39, 45318), (51, 45474), (60, 45537), (85, 45648), (92, 45702), (93, 45705),

Gene: HippoPololi_59 Start: 42223, Stop: 42669, Start Num: 26

Candidate Starts for HippoPololi_59:

(Start: 26 @42223 has 4 MA's), (30, 42241), (34, 42274), (37, 42295), (82, 42622), (83, 42625),

Gene: Horseradish_67 Start: 43906, Stop: 44352, Start Num: 25

Candidate Starts for Horseradish_67:

(Start: 25 @43906 has 32 MA's), (34, 43957), (49, 44134), (60, 44215), (82, 44302), (84, 44311), (90, 44344),

Gene: JacoRen57_60 Start: 46081, Stop: 46740, Start Num: 25

Candidate Starts for JacoRen57_60:

(22, 46072), (Start: 25 @46081 has 32 MA's), (34, 46135), (40, 46177), (48, 46300), (59, 46384), (60, 46390), (75, 46480),

Gene: Jamzy_69 Start: 44792, Stop: 45238, Start Num: 28

Candidate Starts for Jamzy_69:

(2, 44525), (4, 44570), (6, 44606), (Start: 21 @44777 has 3 MA's), (Start: 28 @44792 has 18 MA's), (30, 44807), (32, 44828), (34, 44840), (35, 44855), (37, 44861), (46, 44954), (51, 45032), (55, 45065),

(64, 45137), (78, 45182), (86, 45200), (89, 45215), (91, 45230),

Gene: KayGee_69 Start: 46109, Stop: 46510, Start Num: 28

Candidate Starts for KayGee_69:

(Start: 28 @46109 has 18 MA's), (34, 46157), (35, 46172), (36, 46175), (37, 46178), (38, 46190), (39, 46193), (42, 46208), (43, 46226), (44, 46253), (47, 46307), (50, 46337), (51, 46349), (54, 46367), (71, 46460), (87, 46493),

Gene: Lauer_60 Start: 45953, Stop: 46354, Start Num: 28

Candidate Starts for Lauer_60:

(Start: 28 @45953 has 18 MA's), (34, 46001), (35, 46016), (36, 46019), (37, 46022), (38, 46034), (39, 46037), (42, 46052), (43, 46070), (44, 46097), (47, 46151), (50, 46181), (51, 46193), (54, 46211), (71, 46304), (87, 46337),

Gene: LongHai_61 Start: 44078, Stop: 44746, Start Num: 25

Candidate Starts for LongHai_61:

(5, 43874), (12, 43982), (Start: 25 @44078 has 32 MA's), (33, 44123), (34, 44132), (41, 44180), (45, 44231), (52, 44333), (53, 44339), (62, 44414),

Gene: MAnor_68 Start: 46102, Stop: 46515, Start Num: 28

Candidate Starts for MAnor_68:

(Start: 28 @46102 has 18 MA's), (34, 46150), (35, 46165), (36, 46168), (37, 46171), (38, 46183), (39, 46186), (42, 46201), (44, 46246), (48, 46318), (50, 46330), (51, 46342), (54, 46360), (72, 46456), (76, 46477), (85, 46492), (88, 46507),

Gene: MScarn_69 Start: 43820, Stop: 44266, Start Num: 25

Candidate Starts for MScarn_69:

(Start: 25 @43820 has 32 MA's), (34, 43871), (49, 44048), (60, 44129), (82, 44216), (84, 44225), (90, 44258),

Gene: MaVan_60 Start: 42943, Stop: 43359, Start Num: 27

Candidate Starts for MaVan_60:

(3, 42718), (10, 42796), (11, 42805), (Start: 27 @42943 has 7 MA's), (34, 42994), (37, 43015),

Gene: Maco6_57 Start: 43163, Stop: 43831, Start Num: 25

Candidate Starts for Maco6_57:

(5, 42959), (12, 43067), (Start: 25 @43163 has 32 MA's), (33, 43208), (34, 43217), (41, 43265), (45, 43316), (52, 43418), (53, 43424), (62, 43499),

Gene: Malvina_61 Start: 42221, Stop: 42667, Start Num: 26

Candidate Starts for Malvina_61:

(Start: 26 @42221 has 4 MA's), (30, 42239), (34, 42272), (37, 42293), (47, 42416), (82, 42620), (83, 42623),

Gene: Margaret_69 Start: 44428, Stop: 44931, Start Num: 17

Candidate Starts for Margaret_69:

(1, 44179), (2, 44227), (4, 44272), (6, 44308), (Start: 17 @44428 has 1 MA's), (Start: 25 @44479 has 32 MA's), (34, 44527), (37, 44548), (47, 44677), (60, 44782), (69, 44836), (89, 44908), (91, 44923),

Gene: Mayweather_69 Start: 46145, Stop: 46570, Start Num: 28

Candidate Starts for Mayweather_69:

(Start: 28 @46145 has 18 MA's), (34, 46193), (35, 46208), (36, 46211), (37, 46214), (38, 46226), (39, 46229), (42, 46244), (44, 46289), (48, 46361), (50, 46373), (51, 46385), (54, 46403), (77, 46520), (85,

46547), (88, 46562),

Gene: McDazzle_68 Start: 45660, Stop: 46085, Start Num: 28

Candidate Starts for McDazzle_68:

(Start: 28 @45660 has 18 MA's), (34, 45708), (35, 45723), (36, 45726), (37, 45729), (38, 45741), (39, 45744), (42, 45759), (44, 45804), (48, 45876), (50, 45888), (51, 45900), (54, 45918), (77, 46035), (85, 46062), (88, 46077),

Gene: Muddy_60 Start: 44246, Stop: 44914, Start Num: 25

Candidate Starts for Muddy_60:

(5, 44042), (12, 44150), (Start: 25 @44246 has 32 MA's), (33, 44291), (34, 44300), (41, 44348), (45, 44399), (52, 44501), (53, 44507), (62, 44582),

Gene: MunkgeeRoachy_64 Start: 43779, Stop: 44231, Start Num: 25

Candidate Starts for MunkgeeRoachy_64:

(Start: 25 @43779 has 32 MA's), (32, 43818), (37, 43851), (39, 43866), (42, 43881), (51, 44022), (67, 44139), (73, 44154), (74, 44157), (82, 44190),

Gene: Nibbles_59 Start: 42596, Stop: 43018, Start Num: 27

Candidate Starts for Nibbles_59:

(3, 42371), (10, 42449), (11, 42458), (Start: 27 @42596 has 7 MA's), (34, 42647), (37, 42668), (66, 42941), (79, 42971), (81, 42974), (87, 42989),

Gene: Nina_65 Start: 44528, Stop: 44989, Start Num: 25

Candidate Starts for Nina_65:

(Start: 25 @44528 has 32 MA's), (33, 44570), (34, 44579), (37, 44600), (39, 44615), (42, 44630), (51, 44771), (67, 44888), (73, 44903), (74, 44906), (82, 44939), (84, 44948),

Gene: NoShow_71 Start: 48624, Stop: 49217, Start Num: 25

Candidate Starts for NoShow_71:

(15, 48552), (Start: 25 @48624 has 32 MA's), (31, 48654), (34, 48678), (48, 48843), (58, 48921), (59, 48927), (65, 48981),

Gene: Nodigi_69 Start: 45255, Stop: 45731, Start Num: 28

Candidate Starts for Nodigi_69:

(Start: 28 @45255 has 18 MA's), (37, 45324), (39, 45339), (51, 45495), (60, 45558), (85, 45669), (92, 45723), (93, 45726),

Gene: Orla_70 Start: 45389, Stop: 45862, Start Num: 28

Candidate Starts for Orla_70:

(Start: 28 @45389 has 18 MA's), (37, 45458), (39, 45473), (51, 45629), (60, 45692), (85, 45800), (92, 45854), (93, 45857),

Gene: Pons_69 Start: 45814, Stop: 46227, Start Num: 28

Candidate Starts for Pons_69:

(Start: 28 @45814 has 18 MA's), (34, 45862), (35, 45877), (36, 45880), (37, 45883), (38, 45895), (39, 45898), (42, 45913), (44, 45958), (48, 46030), (50, 46042), (51, 46054), (54, 46072), (72, 46168), (76, 46189), (85, 46204), (88, 46219),

Gene: PotPie_65 Start: 46025, Stop: 46429, Start Num: 28

Candidate Starts for PotPie_65:

(Start: 28 @46025 has 18 MA's), (34, 46073), (35, 46088), (36, 46091), (37, 46094), (38, 46106), (39, 46109), (42, 46124), (43, 46142), (44, 46169), (47, 46223), (50, 46253), (51, 46265), (54, 46283), (85,

46406), (87, 46412),

Gene: PsychoKiller_64 Start: 43935, Stop: 44387, Start Num: 25

Candidate Starts for PsychoKiller_64:

(Start: 25 @43935 has 32 MA's), (33, 43977), (34, 43986), (37, 44007), (39, 44022), (42, 44037), (51, 44178), (73, 44301), (82, 44337), (84, 44346),

Gene: Quasar_66 Start: 44815, Stop: 45276, Start Num: 25

Candidate Starts for Quasar_66:

(Start: 25 @44815 has 32 MA's), (33, 44857), (34, 44866), (37, 44887), (39, 44902), (42, 44917), (51, 45058), (67, 45175), (73, 45190), (74, 45193), (82, 45226),

Gene: RADical_67 Start: 44332, Stop: 44793, Start Num: 25

Candidate Starts for RADical_67:

(Start: 25 @44332 has 32 MA's), (33, 44374), (34, 44383), (37, 44404), (39, 44419), (42, 44434), (51, 44575), (67, 44692), (73, 44707), (82, 44743),

Gene: RSchmailzl_66 Start: 44369, Stop: 44830, Start Num: 25

Candidate Starts for RSchmailzl_66:

(13, 44276), (16, 44303), (20, 44351), (Start: 25 @44369 has 32 MA's), (33, 44411), (37, 44441), (39, 44456), (42, 44471), (51, 44612), (67, 44729), (73, 44744), (82, 44780), (84, 44789),

Gene: RanchParmCat_69 Start: 44771, Stop: 45223, Start Num: 25

Candidate Starts for RanchParmCat_69:

(1, 44471), (2, 44519), (4, 44564), (6, 44600), (Start: 17 @44720 has 1 MA's), (Start: 25 @44771 has 32 MA's), (34, 44819), (37, 44840), (39, 44855), (47, 44969), (60, 45074), (69, 45128), (89, 45200), (91, 45215),

Gene: RedBaron_73 Start: 45351, Stop: 45812, Start Num: 25

Candidate Starts for RedBaron_73:

(Start: 25 @45351 has 32 MA's), (33, 45393), (34, 45402), (37, 45423), (39, 45438), (42, 45453), (51, 45594), (67, 45711), (73, 45726), (74, 45729), (82, 45762), (84, 45771),

Gene: Salvus_61 Start: 44078, Stop: 44746, Start Num: 25

Candidate Starts for Salvus_61:

(5, 43874), (12, 43982), (Start: 25 @44078 has 32 MA's), (33, 44123), (34, 44132), (41, 44180), (45, 44231), (52, 44333), (53, 44339), (62, 44414),

Gene: SheckWes_71 Start: 45380, Stop: 45793, Start Num: 28

Candidate Starts for SheckWes_71:

(Start: 28 @45380 has 18 MA's), (34, 45428), (35, 45443), (36, 45446), (37, 45449), (38, 45461), (39, 45464), (42, 45479), (44, 45524), (48, 45596), (50, 45608), (51, 45620), (54, 45638), (72, 45734), (76, 45755), (85, 45770), (88, 45785),

Gene: SketchMex_65 Start: 43973, Stop: 44419, Start Num: 25

Candidate Starts for SketchMex_65:

(Start: 25 @43973 has 32 MA's), (32, 44012), (34, 44024), (60, 44282), (82, 44369), (84, 44378), (90, 44411),

Gene: Socotra_67 Start: 44438, Stop: 44899, Start Num: 25

Candidate Starts for Socotra_67:

(Start: 25 @44438 has 32 MA's), (33, 44480), (34, 44489), (37, 44510), (39, 44525), (42, 44540), (51, 44681), (67, 44798), (73, 44813), (74, 44816), (82, 44849), (84, 44858),

Gene: Sopespian_62 Start: 43936, Stop: 44388, Start Num: 25

Candidate Starts for Sopespian_62:

(Start: 25 @43936 has 32 MA's), (33, 43978), (34, 43987), (37, 44008), (39, 44023), (42, 44038), (51, 44179), (73, 44302), (82, 44338), (84, 44347),

Gene: Starburst_67 Start: 44334, Stop: 44795, Start Num: 25

Candidate Starts for Starburst_67:

(Start: 25 @44334 has 32 MA's), (33, 44376), (34, 44385), (37, 44406), (39, 44421), (42, 44436), (51, 44577), (67, 44694), (73, 44709), (82, 44745), (84, 44754),

Gene: SteamedHams_63 Start: 42411, Stop: 42872, Start Num: 25

Candidate Starts for SteamedHams_63:

(23, 42405), (Start: 25 @42411 has 32 MA's), (39, 42498), (42, 42513), (51, 42654), (60, 42720), (63, 42759), (84, 42831), (90, 42864),

Gene: SummitAcademy_65 Start: 45168, Stop: 45572, Start Num: 28

Candidate Starts for SummitAcademy_65:

(Start: 28 @45168 has 18 MA's), (34, 45216), (35, 45231), (36, 45234), (37, 45237), (38, 45249), (39, 45252), (42, 45267), (43, 45285), (44, 45312), (47, 45366), (50, 45396), (51, 45408), (54, 45426), (85, 45549), (87, 45555),

Gene: Survivors_62 Start: 42978, Stop: 43394, Start Num: 27

Candidate Starts for Survivors_62:

(Start: 27 @42978 has 7 MA's), (34, 43029), (37, 43050), (61, 43287),

Gene: SweatNTears_67 Start: 44068, Stop: 44514, Start Num: 25

Candidate Starts for SweatNTears_67:

(Start: 25 @44068 has 32 MA's), (34, 44119), (51, 44311), (60, 44377), (82, 44464), (84, 44473), (90, 44506),

Gene: Tarnish_65 Start: 45348, Stop: 45764, Start Num: 29

Candidate Starts for Tarnish_65:

(7, 45168), (8, 45174), (9, 45189), (14, 45261), (18, 45285), (19, 45309), (23, 45336), (Start: 29 @45348 has 1 MA's), (34, 45396), (35, 45411), (36, 45414), (37, 45417), (38, 45429), (39, 45432), (42, 45447), (43, 45465), (44, 45492), (47, 45546), (50, 45576), (51, 45588), (54, 45606), (71, 45699), (85, 45741), (87, 45747),

Gene: Tolls_64 Start: 42682, Stop: 43143, Start Num: 25

Candidate Starts for Tolls_64:

(23, 42676), (Start: 25 @42682 has 32 MA's), (39, 42769), (42, 42784), (51, 42925), (57, 42976), (60, 42991), (63, 43030), (84, 43102), (90, 43135),

Gene: Troje_67 Start: 44043, Stop: 44489, Start Num: 25

Candidate Starts for Troje_67:

(Start: 25 @44043 has 32 MA's), (34, 44094), (51, 44286), (60, 44352), (82, 44439), (84, 44448), (90, 44481),

Gene: Typhonomachy_65 Start: 44154, Stop: 44615, Start Num: 25

Candidate Starts for Typhonomachy_65:

(Start: 25 @44154 has 32 MA's), (33, 44196), (34, 44205), (37, 44226), (39, 44241), (42, 44256), (51, 44397), (67, 44514), (73, 44529), (82, 44565), (84, 44574),

Gene: Vine_68 Start: 45791, Stop: 46192, Start Num: 28

Candidate Starts for Vine_68:

(Start: 28 @45791 has 18 MA's), (34, 45839), (35, 45854), (36, 45857), (37, 45860), (38, 45872), (39, 45875), (42, 45890), (43, 45908), (44, 45935), (47, 45989), (50, 46019), (51, 46031), (54, 46049), (87, 46175),

Gene: Wallaby_62 Start: 42909, Stop: 43334, Start Num: 27

Candidate Starts for Wallaby_62:

(3, 42684), (10, 42762), (11, 42771), (Start: 27 @42909 has 7 MA's), (34, 42960), (37, 42981), (69, 43263), (79, 43290),

Gene: Wolfwood_60 Start: 42883, Stop: 43299, Start Num: 27

Candidate Starts for Wolfwood_60:

(Start: 27 @42883 has 7 MA's), (34, 42934), (37, 42955),

Gene: Yakult_67 Start: 44964, Stop: 45431, Start Num: 21

Candidate Starts for Yakult_67:

(Start: 21 @44964 has 3 MA's), (Start: 28 @44979 has 18 MA's), (30, 44994), (32, 45015), (34, 45027), (35, 45042), (37, 45048), (51, 45219), (64, 45324), (78, 45369), (86, 45393), (89, 45408), (91, 45423),

Gene: Yarn_59 Start: 42439, Stop: 42900, Start Num: 25

Candidate Starts for Yarn_59:

(23, 42433), (Start: 25 @42439 has 32 MA's), (39, 42526), (42, 42541), (51, 42682), (60, 42748), (63, 42787), (84, 42859), (90, 42892),

Gene: Yucky_68 Start: 45583, Stop: 46002, Start Num: 28

Candidate Starts for Yucky_68:

(Start: 28 @45583 has 18 MA's), (34, 45631), (35, 45646), (36, 45649), (37, 45652), (38, 45664), (39, 45667), (42, 45682), (44, 45727), (47, 45781), (50, 45811), (51, 45823), (54, 45841), (71, 45934), (87, 45985),

Gene: Yummy_67 Start: 44020, Stop: 44466, Start Num: 25

Candidate Starts for Yummy_67:

(Start: 25 @44020 has 32 MA's), (34, 44071), (49, 44248), (60, 44329), (82, 44416), (84, 44425), (90, 44458),

Gene: Zareef_61 Start: 42906, Stop: 43331, Start Num: 27

Candidate Starts for Zareef_61:

(Start: 27 @42906 has 7 MA's), (34, 42957), (37, 42978), (69, 43260), (79, 43287),