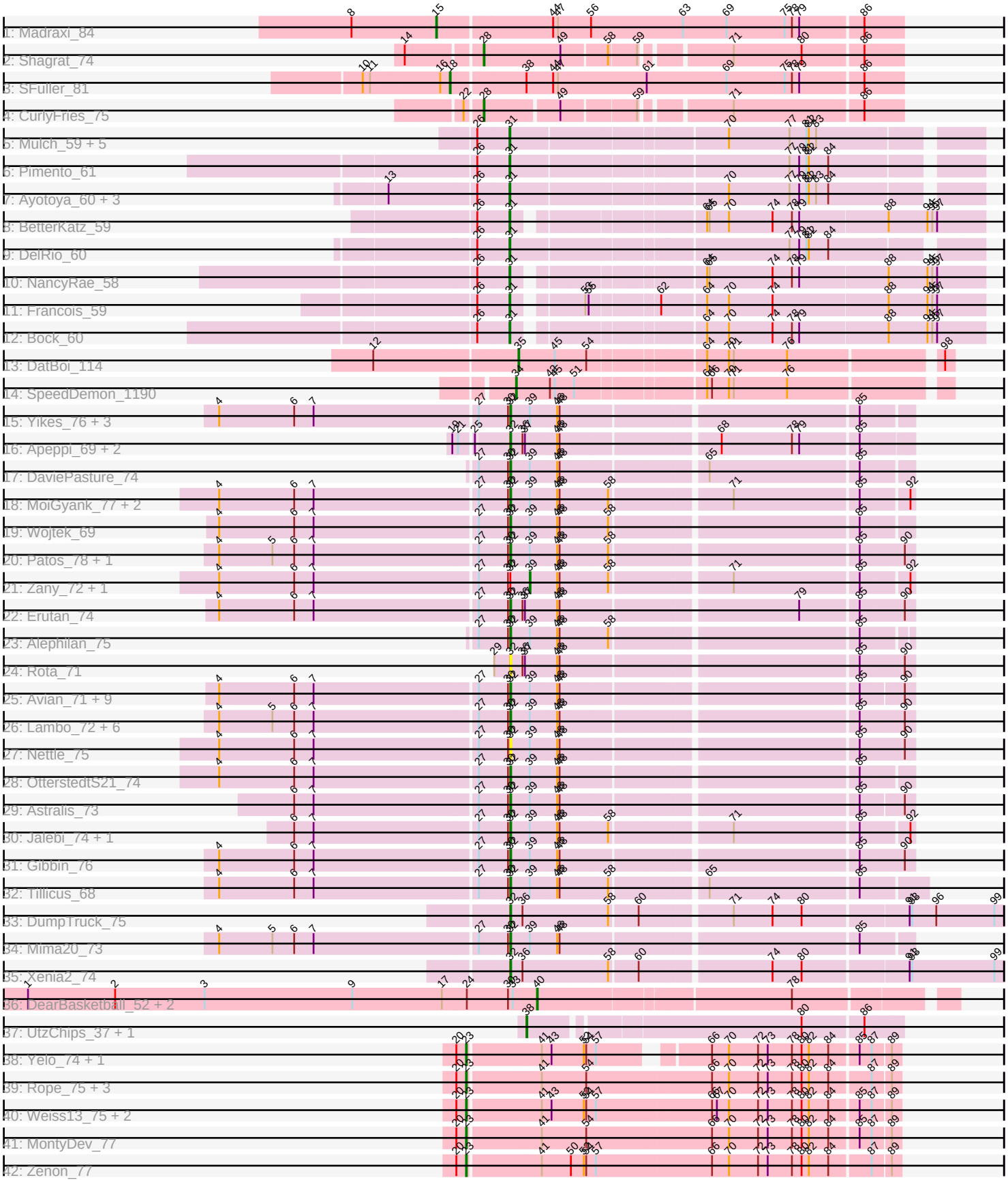
Pham 345634


1: Madraxi_84
2: Shagrat_74
3: SFuller_81
4: CurlyFries_75
5: Mulch_59 + 5
6: Pimento_61
7: Ayotoya_60 + 3
8: BetterKatz_59
9: DelRio_60
10: NancyRae_58
11: Francois_59
12: Bock_60
13: DatBoi_114
14: SpeedDemon_1190
15: Yikes_76 + 3
16: Apeppi_69 + 2
17: DaviePasture_74
18: MoiGyank_77 + 2
19: Wojtek_69
20: Patos_78 + 1
21: Zany_72 + 1
22: Erutan_74
23: Alephilan_75
24: Rota_71
25: Avian_71 + 9
26: Lambo_72 + 6
27: Nettie_75
28: OtterstedtS21_74
29: Astralis_73
30: Jalebi_74 + 1
31: Gibbin_76
32: Tillicus_68
33: DumpTruck_75
34: Mima20_73
35: Xenia2_74
36: DearBasketball_52 + 2
37: UtzChips_37 + 1
38: Yelo_74 + 1
39: Rope_75 + 3
40: Weiss13_75 + 2
41: MontyDev_77
42: Zenon_77

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 345634 Report

This analysis was run 11/14/26 on database version 672.

Pham number 345634 has 84 members, 10 are drafts.

Phages represented in each track:
• Track 1 : Madraxi_84
• Track 2 : Shagrat_74
• Track 3 : SFuller_81
• Track 4 : CurlyFries_75
• Track 5 : Mulch_59, Nadeem_59, Brylie_59, Parada_59, SussRoloMann_59, WheatThin_58
• Track 6 : Pimento_61
• Track 7 : Ayotoya_60, GrandSlam_60, Chop_60, Hamood_60
• Track 8 : BetterKatz_59
• Track 9 : DelRio_60
• Track 10 : NancyRae_58
• Track 11 : Francois_59
• Track 12 : Bock_60
• Track 13 : DatBoi_114
• Track 14 : SpeedDemon_1190
• Track 15 : Yikes_76, GretelLyn_74, Ranch_74, Sadboi_75
• Track 16 : Apeppi_69, Aaravos_69, LuckyLeo_71
• Track 17 : DaviePasture_74
• Track 18 : MoiGyank_77, Pywacket_71, LavAbarElk_74
• Track 19 : Wojtek_69
• Track 20 : Patos_78, NorManre_78
• Track 21 : Zany_72, Rukungu_76
• Track 22 : Erutan_74
• Track 23 : Alephilan_75
• Track 24 : Rota_71
• Track 25 : Avian_71, NovaSharks_75, RazorC_73, Stormer_73, Riduram_72, Rumi_74, Jamemuya19_72, Alyssamiracle_76, Genamy16_76, Charminar_72
• Track 26 : Lambo_72, Fulcrum_74, BirthdayBoy_76, DoobyDoo_73, ParvusTarda_73, Lila22_75, GOATification_74
• Track 27 : Nettle_75
• Track 28 : OtterstedtS21_74
• Track 29 : Astralis_73
• Track 30 : Jalebi_74, Sampudon_75
• Track 31 : Gibbin_76
• Track 32 : Tillicus_68
• Track 33 : DumpTruck_75
• Track 34 : Mima20_73

• Track 35 : Xenia2_74
• Track 36 : DearBasketball_52, DinoNuggs_50, Reyja_50
• Track 37 : UtzChips_37, Barnstormer_37
• Track 38 : Yelo_74, Gimesa_76
• Track 39 : Rope_75, Candle_73, Papyrus_75, Send513_75
• Track 40 : Weiss13_75, Nilo_77, Riparian_77
• Track 41 : MontyDev_77
• Track 42 : Zenon_77

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

The start number called the most often in the published annotations is 32, it was called in 39 of the 74 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• Aaravos_69, Alephilan_75, Alyssamiracle_76, Apeppi_69, Astralis_73, Avian_71, BirthdayBoy_76, Charminar_72, DaviePasture_74, DoobyDoo_73, DumpTruck_75, Erutan_74, Fulcrum_74, GOATification_74, Genamy16_76, Gibbin_76, GretelLyn_74, Jalebi_74, Jamemuya19_72, Lambo_72, LavAbarElk_74, Lila22_75, LuckyLeo_71, Mima20_73, MoiGyank_77, Nettle_75, NorManre_78, NovaSharks_75, OtterstedtS21_74, ParvusTarda_73, Patos_78, Pywacket_71, Ranch_74, RazorC_73, Riduram_72, Rota_71, Rumi_74, Sadboi_75, Sampudon_75, Stormer_73, Tillicus_68, Wojtek_69, Xenia2_74, Yikes_76,

Genes that have the "Most Annotated" start but do not call it:
• Rukungu_76, Zany_72,

Genes that do not have the "Most Annotated" start:
• Ayotoya_60, Barnstormer_37, BetterKatz_59, Bock_60, Brylie_59, Candle_73, Chop_60, CurlyFries_75, DatBoi_114, DearBasketball_52, DelRio_60, DinoNuggs_50, Francois_59, Gimesa_76, GrandSlam_60, Hamood_60, Madraxi_84, MontyDev_77, Mulch_59, Nadeem_59, NancyRae_58, Nilo_77, Papyrus_75, Parada_59, Pimento_61, Reyja_50, Riparian_77, Rope_75, SFuller_81, Send513_75, Shagrat_74, SpeedDemon_1190, SussRoloMann_59, UtzChips_37, Weiss13_75, WheatThin_58, Yelo_74, Zenon_77,

Summary by start number:

Start 15:
• Found in 1 of 84 (1.2%) of genes in pham
• Manual Annotations of this start: 1 of 74
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Madraxi_84 (CF),

Start 18:
• Found in 1 of 84 (1.2%) of genes in pham
• Manual Annotations of this start: 1 of 74
• Called 100.0% of time when present
• Phage (with cluster) where this start called: SFuller_81 (CF),

Start 23:
• Found in 11 of 84 (13.1%) of genes in pham
• Manual Annotations of this start: 10 of 74
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Candle_73 (R), Gimesa_76 (R), MontyDev_77 (R), Nilo_77 (R), Papyrus_75 (R), Riparian_77 (R), Rope_75 (R), Send513_75 (R), Weiss13_75 (R), Yelo_74 (R), Zenon_77 (R),

Start 28:
• Found in 2 of 84 (2.4%) of genes in pham
• Manual Annotations of this start: 2 of 74
• Called 100.0% of time when present
• Phage (with cluster) where this start called: CurlyFries_75 (CF), Shagrat_74 (CF),

Start 31:
• Found in 16 of 84 (19.0%) of genes in pham
• Manual Annotations of this start: 15 of 74
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Ayotoya_60 (DI), BetterKatz_59 (DI), Bock_60 (DI), Brylie_59 (DI), Chop_60 (DI), DelRio_60 (DI), Francois_59 (DI), GrandSlam_60 (DI), Hamood_60 (DI), Mulch_59 (DI), Nadeem_59 (DI), NancyRae_58 (DI), Parada_59 (DI), Pimento_61 (DI), SussRoloMann_59 (DI), WheatThin_58 (DI),

Start 32:
• Found in 46 of 84 (54.8%) of genes in pham
• Manual Annotations of this start: 39 of 74
• Called 95.7% of time when present
• Phage (with cluster) where this start called: Aaravos_69 (DV), Alephilan_75 (DV), Alyssamiracle_76 (DV), Apeppi_69 (DV), Astralis_73 (DV), Avian_71 (DV), BirthdayBoy_76 (DV), Charminar_72 (DV), DaviePasture_74 (DV), DoobyDoo_73 (DV), DumpTruck_75 (DV), Erutan_74 (DV), Fulcrum_74 (DV), GOATification_74 (DV), Genamy16_76 (DV), Gibbin_76 (DV), GretelLyn_74 (DV), Jalebi_74 (DV), Jamemuya19_72 (DV), Lambo_72 (DV), LavAbarElk_74 (DV), Lila22_75 (DV), LuckyLeo_71 (DV), Mima20_73 (DV), MoiGyank_77 (DV), Nettle_75 (DV), NorManre_78 (DV), NovaSharks_75 (DV), OtterstedtS21_74 (DV), ParvusTarda_73 (DV), Patos_78 (DV), Pywacket_71 (DV), Ranch_74 (DV), RazorC_73 (DV), Riduram_72 (DV), Rota_71 (DV), Rumi_74 (DV), Sadboi_75 (DV), Sampudon_75 (DV), Stormer_73 (DV), Tillicus_68 (DV), Wojtek_69 (DV), Xenia2_74 (DV), Yikes_76 (DV),

Start 34:
• Found in 1 of 84 (1.2%) of genes in pham
• Manual Annotations of this start: 1 of 74
• Called 100.0% of time when present
• Phage (with cluster) where this start called: SpeedDemon_1190 (DL),

Start 35:
• Found in 1 of 84 (1.2%) of genes in pham
• Manual Annotations of this start: 1 of 74
• Called 100.0% of time when present
• Phage (with cluster) where this start called: DatBoi_114 (DL),

Start 38:
• Found in 3 of 84 (3.6%) of genes in pham
• Manual Annotations of this start: 2 of 74
• Called 66.7% of time when present
• Phage (with cluster) where this start called: Barnstormer_37 (EH), UtzChips_37 (EH),

Start 39:
• Found in 39 of 84 (46.4%) of genes in pham
• Manual Annotations of this start: 1 of 74
• Called 5.1% of time when present
• Phage (with cluster) where this start called: Rukungu_76 (DV), Zany_72 (DV),

Start 40:
• Found in 3 of 84 (3.6%) of genes in pham
• Manual Annotations of this start: 1 of 74
• Called 100.0% of time when present
• Phage (with cluster) where this start called: DearBasketball_52 (DY), DinoNuggs_50 (DY), Reyja_50 (DY),

Summary by clusters:

There are 7 clusters represented in this pham: DL, EH, DI, CF, R, DY, DV,

Info for manual annotations of cluster CF:
•Start number 15 was manually annotated 1 time for cluster CF.
•Start number 18 was manually annotated 1 time for cluster CF.
•Start number 28 was manually annotated 2 times for cluster CF.

Info for manual annotations of cluster DI:
•Start number 31 was manually annotated 15 times for cluster DI.

Info for manual annotations of cluster DL:
•Start number 34 was manually annotated 1 time for cluster DL.
•Start number 35 was manually annotated 1 time for cluster DL.

Info for manual annotations of cluster DV:
•Start number 32 was manually annotated 39 times for cluster DV.
•Start number 39 was manually annotated 1 time for cluster DV.

Info for manual annotations of cluster DY:
•Start number 40 was manually annotated 1 time for cluster DY.

Info for manual annotations of cluster EH:
•Start number 38 was manually annotated 2 times for cluster EH.

Info for manual annotations of cluster R:
•Start number 23 was manually annotated 10 times for cluster R.

Gene Information:

Gene: Aaravos_69 Start: 49531, Stop: 49995, Start Num: 32
Candidate Starts for Aaravos_69:
(19, 49471), (21, 49477), (25, 49492), (Start: 32 @49531 has 39 MA's), (36, 49546), (37, 49549), (46, 49588), (48, 49591), (68, 49768), (78, 49855), (79, 49864), (85, 49933),

Gene: Alephilan_75 Start: 50462, Stop: 50920, Start Num: 32
Candidate Starts for Alephilan_75:
(27, 50426), (30, 50459), (Start: 32 @50462 has 39 MA's), (Start: 39 @50486 has 1 MA's), (46, 50519), (48, 50522), (58, 50579), (85, 50864),

Gene: Alyssamiracle_76 Start: 49100, Stop: 49561, Start Num: 32
Candidate Starts for Alyssamiracle_76:
(4, 48749), (6, 48842), (7, 48866), (27, 49064), (30, 49097), (Start: 32 @49100 has 39 MA's), (Start: 39 @49124 has 1 MA's), (46, 49157), (48, 49160), (85, 49502), (90, 49550),

Gene: Apeppi_69 Start: 49601, Stop: 50065, Start Num: 32
Candidate Starts for Apeppi_69:
(19, 49541), (21, 49547), (25, 49562), (Start: 32 @49601 has 39 MA's), (36, 49616), (37, 49619), (46, 49658), (48, 49661), (68, 49838), (78, 49925), (79, 49934), (85, 50003),

Gene: Astralis_73 Start: 48679, Stop: 49140, Start Num: 32
Candidate Starts for Astralis_73:
(6, 48421), (7, 48445), (27, 48643), (30, 48676), (Start: 32 @48679 has 39 MA's), (Start: 39 @48703 has 1 MA's), (46, 48736), (48, 48739), (85, 49081), (90, 49129),

Gene: Avian_71 Start: 48828, Stop: 49289, Start Num: 32
Candidate Starts for Avian_71:
(4, 48477), (6, 48570), (7, 48594), (27, 48792), (30, 48825), (Start: 32 @48828 has 39 MA's), (Start: 39 @48852 has 1 MA's), (46, 48885), (48, 48888), (85, 49230), (90, 49278),

Gene: Ayotoya_60 Start: 40557, Stop: 41096, Start Num: 31
Candidate Starts for Ayotoya_60:
(13, 40413), (26, 40518), (Start: 31 @40557 has 15 MA's), (70, 40806), (77, 40881), (79, 40893), (81, 40902), (82, 40905), (83, 40914), (84, 40929),

Gene: Barnstormer_37 Start: 25193, Stop: 25627, Start Num: 38
Candidate Starts for Barnstormer_37:
(Start: 38 @25193 has 2 MA's), (80, 25511), (86, 25583),

Gene: BetterKatz_59 Start: 39771, Stop: 40310, Start Num: 31
Candidate Starts for BetterKatz_59:
(26, 39732), (Start: 31 @39771 has 15 MA's), (64, 39969), (65, 39972), (70, 39996), (74, 40050), (78, 40074), (79, 40083), (88, 40191), (94, 40239), (95, 40245), (97, 40251),

Gene: BirthdayBoy_76 Start: 50736, Stop: 51203, Start Num: 32
Candidate Starts for BirthdayBoy_76:
(4, 50385), (5, 50451), (6, 50478), (7, 50502), (27, 50700), (30, 50733), (Start: 32 @50736 has 39 MA's), (Start: 39 @50760 has 1 MA's), (46, 50793), (48, 50796), (85, 51138), (90, 51192),

Gene: Bock_60 Start: 39800, Stop: 40339, Start Num: 31
Candidate Starts for Bock_60:
(26, 39761), (Start: 31 @39800 has 15 MA's), (64, 39998), (70, 40025), (74, 40079), (78, 40103), (79, 40112), (88, 40220), (94, 40268), (95, 40274), (97, 40280),

Gene: Brylie_59 Start: 39537, Stop: 40076, Start Num: 31
Candidate Starts for Brylie_59:
(26, 39498), (Start: 31 @39537 has 15 MA's), (70, 39786), (77, 39861), (81, 39882), (82, 39885), (83, 39894),

Gene: Candle_73 Start: 58217, Stop: 58732, Start Num: 23
Candidate Starts for Candle_73:
(20, 58205), (Start: 23 @58217 has 10 MA's), (41, 58304), (54, 58358), (66, 58508), (70, 58529), (72, 58565), (73, 58577), (78, 58607), (80, 58619), (82, 58628), (84, 58652), (87, 58700), (89, 58721),

Gene: Charminar_72 Start: 48336, Stop: 48797, Start Num: 32
Candidate Starts for Charminar_72:
(4, 47985), (6, 48078), (7, 48102), (27, 48300), (30, 48333), (Start: 32 @48336 has 39 MA's), (Start: 39 @48360 has 1 MA's), (46, 48393), (48, 48396), (85, 48738), (90, 48786),

Gene: Chop_60 Start: 40308, Stop: 40847, Start Num: 31
Candidate Starts for Chop_60:
(13, 40164), (26, 40269), (Start: 31 @40308 has 15 MA's), (70, 40557), (77, 40632), (79, 40644), (81, 40653), (82, 40656), (83, 40665), (84, 40680),

Gene: CurlyFries_75 Start: 42797, Stop: 43261, Start Num: 28
Candidate Starts for CurlyFries_75:
(22, 42779), (Start: 28 @42797 has 2 MA's), (49, 42881), (59, 42965), (71, 43058), (86, 43214),

Gene: DatBoi_114 Start: 72473, Stop: 72970, Start Num: 35
Candidate Starts for DatBoi_114:
(12, 72302), (Start: 35 @72473 has 1 MA's), (45, 72518), (54, 72554), (64, 72686), (70, 72713), (71, 72719), (76, 72785), (98, 72959),

Gene: DaviePasture_74 Start: 50326, Stop: 50787, Start Num: 32
Candidate Starts for DaviePasture_74:
(27, 50290), (30, 50323), (Start: 32 @50326 has 39 MA's), (Start: 39 @50350 has 1 MA's), (46, 50383), (48, 50386), (65, 50548), (85, 50728),

Gene: DearBasketball_52 Start: 33392, Stop: 33871, Start Num: 40
Candidate Starts for DearBasketball_52:
(1, 32762), (2, 32870), (3, 32981), (9, 33164), (17, 33275), (24, 33305), (30, 33356), (33, 33362), (Start: 40 @33392 has 1 MA's), (78, 33689),

Gene: DelRio_60 Start: 40718, Stop: 41257, Start Num: 31
Candidate Starts for DelRio_60:
(26, 40679), (Start: 31 @40718 has 15 MA's), (77, 41042), (79, 41054), (81, 41063), (82, 41066), (84, 41090),

Gene: DinoNuggs_50 Start: 33061, Stop: 33540, Start Num: 40
Candidate Starts for DinoNuggs_50:
(1, 32431), (2, 32539), (3, 32650), (9, 32833), (17, 32944), (24, 32974), (30, 33025), (33, 33031), (Start: 40 @33061 has 1 MA's), (78, 33358),

Gene: DoobyDoo_73 Start: 49084, Stop: 49551, Start Num: 32
Candidate Starts for DoobyDoo_73:

(4, 48733), (5, 48799), (6, 48826), (7, 48850), (27, 49048), (30, 49081), (Start: 32 @49084 has 39 MA's), (Start: 39 @49108 has 1 MA's), (46, 49141), (48, 49144), (85, 49486), (90, 49540),

Gene: DumpTruck_75 Start: 49735, Stop: 50310, Start Num: 32
Candidate Starts for DumpTruck_75:
(Start: 32 @49735 has 39 MA's), (36, 49750), (58, 49852), (60, 49885), (71, 49987), (74, 50035), (80, 50071), (91, 50194), (93, 50197), (96, 50227), (99, 50299),

Gene: Erutan_74 Start: 49851, Stop: 50318, Start Num: 32
Candidate Starts for Erutan_74:
(4, 49500), (6, 49593), (7, 49617), (27, 49815), (30, 49848), (Start: 32 @49851 has 39 MA's), (36, 49866), (37, 49869), (46, 49908), (48, 49911), (79, 50184), (85, 50253), (90, 50307),

Gene: Francois_59 Start: 39804, Stop: 40343, Start Num: 31
Candidate Starts for Francois_59:
(26, 39765), (Start: 31 @39804 has 15 MA's), (53, 39873), (55, 39876), (62, 39951), (64, 40002), (70, 40029), (74, 40083), (88, 40224), (94, 40272), (95, 40278), (97, 40284),

Gene: Fulcrum_74 Start: 50089, Stop: 50556, Start Num: 32
Candidate Starts for Fulcrum_74:
(4, 49738), (5, 49804), (6, 49831), (7, 49855), (27, 50053), (30, 50086), (Start: 32 @50089 has 39 MA's), (Start: 39 @50113 has 1 MA's), (46, 50146), (48, 50149), (85, 50491), (90, 50545),

Gene: GOATification_74 Start: 50089, Stop: 50556, Start Num: 32
Candidate Starts for GOATification_74:
(4, 49738), (5, 49804), (6, 49831), (7, 49855), (27, 50053), (30, 50086), (Start: 32 @50089 has 39 MA's), (Start: 39 @50113 has 1 MA's), (46, 50146), (48, 50149), (85, 50491), (90, 50545),

Gene: Genamy16_76 Start: 49086, Stop: 49547, Start Num: 32
Candidate Starts for Genamy16_76:
(4, 48735), (6, 48828), (7, 48852), (27, 49050), (30, 49083), (Start: 32 @49086 has 39 MA's), (Start: 39 @49110 has 1 MA's), (46, 49143), (48, 49146), (85, 49488), (90, 49536),

Gene: Gibbin_76 Start: 50894, Stop: 51361, Start Num: 32
Candidate Starts for Gibbin_76:
(4, 50543), (6, 50636), (7, 50660), (27, 50858), (30, 50891), (Start: 32 @50894 has 39 MA's), (Start: 39 @50918 has 1 MA's), (46, 50951), (48, 50954), (85, 51296), (90, 51350),

Gene: Gimesa_76 Start: 58087, Stop: 58575, Start Num: 23
Candidate Starts for Gimesa_76:
(20, 58075), (Start: 23 @58087 has 10 MA's), (41, 58174), (43, 58186), (52, 58225), (54, 58228), (57, 58240), (66, 58351), (70, 58372), (72, 58408), (73, 58420), (78, 58450), (80, 58462), (82, 58471), (84, 58495), (85, 58528), (87, 58543), (89, 58564),

Gene: GrandSlam_60 Start: 40308, Stop: 40847, Start Num: 31
Candidate Starts for GrandSlam_60:
(13, 40164), (26, 40269), (Start: 31 @40308 has 15 MA's), (70, 40557), (77, 40632), (79, 40644), (81, 40653), (82, 40656), (83, 40665), (84, 40680),

Gene: GretelLyn_74 Start: 50729, Stop: 51190, Start Num: 32
Candidate Starts for GretelLyn_74:
(4, 50378), (6, 50471), (7, 50495), (27, 50693), (30, 50726), (Start: 32 @50729 has 39 MA's), (Start: 39 @50753 has 1 MA's), (46, 50786), (48, 50789), (85, 51131),

Gene: Hamood_60 Start: 40308, Stop: 40847, Start Num: 31
Candidate Starts for Hamood_60:
(13, 40164), (26, 40269), (Start: 31 @40308 has 15 MA's), (70, 40557), (77, 40632), (79, 40644), (81, 40653), (82, 40656), (83, 40665), (84, 40680),

Gene: Jalebi_74 Start: 51322, Stop: 51783, Start Num: 32
Candidate Starts for Jalebi_74:
(6, 51064), (7, 51088), (27, 51286), (30, 51319), (Start: 32 @51322 has 39 MA's), (Start: 39 @51346 has 1 MA's), (46, 51379), (48, 51382), (58, 51439), (71, 51574), (85, 51724), (92, 51778),

Gene: Jamemuya19_72 Start: 48691, Stop: 49152, Start Num: 32
Candidate Starts for Jamemuya19_72:
(4, 48340), (6, 48433), (7, 48457), (27, 48655), (30, 48688), (Start: 32 @48691 has 39 MA's), (Start: 39 @48715 has 1 MA's), (46, 48748), (48, 48751), (85, 49093), (90, 49141),

Gene: Lambo_72 Start: 49886, Stop: 50353, Start Num: 32
Candidate Starts for Lambo_72:
(4, 49535), (5, 49601), (6, 49628), (7, 49652), (27, 49850), (30, 49883), (Start: 32 @49886 has 39 MA's), (Start: 39 @49910 has 1 MA's), (46, 49943), (48, 49946), (85, 50288), (90, 50342),

Gene: LavAbarElk_74 Start: 49534, Stop: 49995, Start Num: 32
Candidate Starts for LavAbarElk_74:
(4, 49183), (6, 49276), (7, 49300), (27, 49498), (30, 49531), (Start: 32 @49534 has 39 MA's), (Start: 39 @49558 has 1 MA's), (46, 49591), (48, 49594), (58, 49651), (71, 49786), (85, 49936), (92, 49990),

Gene: Lila22_75 Start: 50794, Stop: 51261, Start Num: 32
Candidate Starts for Lila22_75:
(4, 50443), (5, 50509), (6, 50536), (7, 50560), (27, 50758), (30, 50791), (Start: 32 @50794 has 39 MA's), (Start: 39 @50818 has 1 MA's), (46, 50851), (48, 50854), (85, 51196), (90, 51250),

Gene: LuckyLeo_71 Start: 49601, Stop: 50065, Start Num: 32
Candidate Starts for LuckyLeo_71:
(19, 49541), (21, 49547), (25, 49562), (Start: 32 @49601 has 39 MA's), (36, 49616), (37, 49619), (46, 49658), (48, 49661), (68, 49838), (78, 49925), (79, 49934), (85, 50003),

Gene: Madraxi_84 Start: 50398, Stop: 50958, Start Num: 15
Candidate Starts for Madraxi_84:
(8, 50296), (Start: 15 @50398 has 1 MA's), (44, 50533), (47, 50539), (56, 50578), (63, 50692), (69, 50746), (75, 50818), (78, 50827), (79, 50836), (86, 50911),

Gene: Mima20_73 Start: 50272, Stop: 50733, Start Num: 32
Candidate Starts for Mima20_73:
(4, 49921), (5, 49987), (6, 50014), (7, 50038), (27, 50236), (30, 50269), (Start: 32 @50272 has 39 MA's), (Start: 39 @50296 has 1 MA's), (46, 50329), (48, 50332), (85, 50674),

Gene: MoiGyank_77 Start: 50876, Stop: 51337, Start Num: 32
Candidate Starts for MoiGyank_77:
(4, 50525), (6, 50618), (7, 50642), (27, 50840), (30, 50873), (Start: 32 @50876 has 39 MA's), (Start: 39 @50900 has 1 MA's), (46, 50933), (48, 50936), (58, 50993), (71, 51128), (85, 51278), (92, 51332),

Gene: MontyDev_77 Start: 57857, Stop: 58372, Start Num: 23
Candidate Starts for MontyDev_77:

(20, 57845), (Start: 23 @57857 has 10 MA's), (41, 57944), (54, 57998), (66, 58148), (70, 58169), (72, 58205), (73, 58217), (78, 58247), (80, 58259), (82, 58268), (84, 58292), (85, 58325), (87, 58340), (89, 58361),

Gene: Mulch_59 Start: 39537, Stop: 40076, Start Num: 31
Candidate Starts for Mulch_59:
(26, 39498), (Start: 31 @39537 has 15 MA's), (70, 39786), (77, 39861), (81, 39882), (82, 39885), (83, 39894),

Gene: Nadeem_59 Start: 39525, Stop: 40064, Start Num: 31
Candidate Starts for Nadeem_59:
(26, 39486), (Start: 31 @39525 has 15 MA's), (70, 39774), (77, 39849), (81, 39870), (82, 39873), (83, 39882),

Gene: NancyRae_58 Start: 39535, Stop: 40074, Start Num: 31
Candidate Starts for NancyRae_58:
(26, 39496), (Start: 31 @39535 has 15 MA's), (64, 39733), (65, 39736), (74, 39814), (78, 39838), (79, 39847), (88, 39955), (94, 40003), (95, 40009), (97, 40015),

Gene: Nettle_75 Start: 50630, Stop: 51097, Start Num: 32
Candidate Starts for Nettle_75:
(4, 50279), (6, 50372), (7, 50396), (27, 50594), (30, 50627), (Start: 32 @50630 has 39 MA's), (Start: 39 @50654 has 1 MA's), (46, 50687), (48, 50690), (85, 51032), (90, 51086),

Gene: Nilo_77 Start: 58214, Stop: 58729, Start Num: 23
Candidate Starts for Nilo_77:
(20, 58202), (Start: 23 @58214 has 10 MA's), (41, 58301), (43, 58313), (52, 58352), (54, 58355), (57, 58367), (66, 58505), (67, 58511), (70, 58526), (72, 58562), (73, 58574), (78, 58604), (80, 58616), (82, 58625), (84, 58649), (85, 58682), (87, 58697), (89, 58718),

Gene: NorManre_78 Start: 51151, Stop: 51618, Start Num: 32
Candidate Starts for NorManre_78:
(4, 50800), (5, 50866), (6, 50893), (7, 50917), (27, 51115), (30, 51148), (Start: 32 @51151 has 39 MA's), (Start: 39 @51175 has 1 MA's), (46, 51208), (48, 51211), (58, 51268), (85, 51553), (90, 51607),

Gene: NovaSharks_75 Start: 48677, Stop: 49138, Start Num: 32
Candidate Starts for NovaSharks_75:
(4, 48326), (6, 48419), (7, 48443), (27, 48641), (30, 48674), (Start: 32 @48677 has 39 MA's), (Start: 39 @48701 has 1 MA's), (46, 48734), (48, 48737), (85, 49079), (90, 49127),

Gene: OtterstedtS21_74 Start: 50175, Stop: 50636, Start Num: 32
Candidate Starts for OtterstedtS21_74:
(4, 49824), (6, 49917), (7, 49941), (27, 50139), (30, 50172), (Start: 32 @50175 has 39 MA's), (Start: 39 @50199 has 1 MA's), (46, 50232), (48, 50235), (85, 50577),

Gene: Papyrus_75 Start: 57825, Stop: 58340, Start Num: 23
Candidate Starts for Papyrus_75:
(20, 57813), (Start: 23 @57825 has 10 MA's), (41, 57912), (54, 57966), (66, 58116), (70, 58137), (72, 58173), (73, 58185), (78, 58215), (80, 58227), (82, 58236), (84, 58260), (87, 58308), (89, 58329),

Gene: Parada_59 Start: 39537, Stop: 40076, Start Num: 31
Candidate Starts for Parada_59:

(26, 39498), (Start: 31 @39537 has 15 MA's), (70, 39786), (77, 39861), (81, 39882), (82, 39885), (83, 39894),

Gene: ParvusTarda_73 Start: 49565, Stop: 50032, Start Num: 32
Candidate Starts for ParvusTarda_73:
(4, 49214), (5, 49280), (6, 49307), (7, 49331), (27, 49529), (30, 49562), (Start: 32 @49565 has 39 MA's), (Start: 39 @49589 has 1 MA's), (46, 49622), (48, 49625), (85, 49967), (90, 50021),

Gene: Patos_78 Start: 51150, Stop: 51617, Start Num: 32
Candidate Starts for Patos_78:
(4, 50799), (5, 50865), (6, 50892), (7, 50916), (27, 51114), (30, 51147), (Start: 32 @51150 has 39 MA's), (Start: 39 @51174 has 1 MA's), (46, 51207), (48, 51210), (58, 51267), (85, 51552), (90, 51606),

Gene: Pimento_61 Start: 39447, Stop: 39986, Start Num: 31
Candidate Starts for Pimento_61:
(26, 39408), (Start: 31 @39447 has 15 MA's), (77, 39771), (79, 39783), (81, 39792), (82, 39795), (84, 39819),

Gene: Pywacket_71 Start: 50719, Stop: 51180, Start Num: 32
Candidate Starts for Pywacket_71:
(4, 50368), (6, 50461), (7, 50485), (27, 50683), (30, 50716), (Start: 32 @50719 has 39 MA's), (Start: 39 @50743 has 1 MA's), (46, 50776), (48, 50779), (58, 50836), (71, 50971), (85, 51121), (92, 51175),

Gene: Ranch_74 Start: 48903, Stop: 49370, Start Num: 32
Candidate Starts for Ranch_74:
(4, 48552), (6, 48645), (7, 48669), (27, 48867), (30, 48900), (Start: 32 @48903 has 39 MA's), (Start: 39 @48927 has 1 MA's), (46, 48960), (48, 48963), (85, 49305),

Gene: RazorC_73 Start: 48831, Stop: 49292, Start Num: 32
Candidate Starts for RazorC_73:
(4, 48480), (6, 48573), (7, 48597), (27, 48795), (30, 48828), (Start: 32 @48831 has 39 MA's), (Start: 39 @48855 has 1 MA's), (46, 48888), (48, 48891), (85, 49233), (90, 49281),

Gene: Reyja_50 Start: 33061, Stop: 33540, Start Num: 40
Candidate Starts for Reyja_50:
(1, 32431), (2, 32539), (3, 32650), (9, 32833), (17, 32944), (24, 32974), (30, 33025), (33, 33031), (Start: 40 @33061 has 1 MA's), (78, 33358),

Gene: Riduram_72 Start: 48406, Stop: 48867, Start Num: 32
Candidate Starts for Riduram_72:
(4, 48055), (6, 48148), (7, 48172), (27, 48370), (30, 48403), (Start: 32 @48406 has 39 MA's), (Start: 39 @48430 has 1 MA's), (46, 48463), (48, 48466), (85, 48808), (90, 48856),

Gene: Riparian_77 Start: 57661, Stop: 58176, Start Num: 23
Candidate Starts for Riparian_77:
(20, 57649), (Start: 23 @57661 has 10 MA's), (41, 57748), (43, 57760), (52, 57799), (54, 57802), (57, 57814), (66, 57952), (67, 57958), (70, 57973), (72, 58009), (73, 58021), (78, 58051), (80, 58063), (82, 58072), (84, 58096), (85, 58129), (87, 58144), (89, 58165),

Gene: Rope_75 Start: 57817, Stop: 58332, Start Num: 23
Candidate Starts for Rope_75:
(20, 57805), (Start: 23 @57817 has 10 MA's), (41, 57904), (54, 57958), (66, 58108), (70, 58129), (72, 58165), (73, 58177), (78, 58207), (80, 58219), (82, 58228), (84, 58252), (87, 58300), (89, 58321),

Gene: Rota_71 Start: 50289, Stop: 50756, Start Num: 32
Candidate Starts for Rota_71:
(29, 50271), (Start: 32 @50289 has 39 MA's), (36, 50304), (37, 50307), (46, 50346), (48, 50349), (85, 50691), (90, 50745),

Gene: Rukungu_76 Start: 51039, Stop: 51476, Start Num: 39
Candidate Starts for Rukungu_76:
(4, 50664), (6, 50757), (7, 50781), (27, 50979), (30, 51012), (Start: 32 @51015 has 39 MA's), (Start: 39 @51039 has 1 MA's), (46, 51072), (48, 51075), (58, 51132), (71, 51267), (85, 51417), (92, 51471),

Gene: Rumi_74 Start: 48374, Stop: 48835, Start Num: 32
Candidate Starts for Rumi_74:
(4, 48023), (6, 48116), (7, 48140), (27, 48338), (30, 48371), (Start: 32 @48374 has 39 MA's), (Start: 39 @48398 has 1 MA's), (46, 48431), (48, 48434), (85, 48776), (90, 48824),

Gene: SFuller_81 Start: 48187, Stop: 48732, Start Num: 18
Candidate Starts for SFuller_81:
(10, 48085), (11, 48094), (16, 48175), (Start: 18 @48187 has 1 MA's), (Start: 38 @48274 has 2 MA's), (44, 48307), (47, 48313), (61, 48421), (69, 48520), (75, 48592), (78, 48601), (79, 48610), (86, 48685),

Gene: Sadboi_75 Start: 50730, Stop: 51191, Start Num: 32
Candidate Starts for Sadboi_75:
(4, 50379), (6, 50472), (7, 50496), (27, 50694), (30, 50727), (Start: 32 @50730 has 39 MA's), (Start: 39 @50754 has 1 MA's), (46, 50787), (48, 50790), (85, 51132),

Gene: Sampudon_75 Start: 51322, Stop: 51783, Start Num: 32
Candidate Starts for Sampudon_75:
(6, 51064), (7, 51088), (27, 51286), (30, 51319), (Start: 32 @51322 has 39 MA's), (Start: 39 @51346 has 1 MA's), (46, 51379), (48, 51382), (58, 51439), (71, 51574), (85, 51724), (92, 51778),

Gene: Send513_75 Start: 58195, Stop: 58710, Start Num: 23
Candidate Starts for Send513_75:
(20, 58183), (Start: 23 @58195 has 10 MA's), (41, 58282), (54, 58336), (66, 58486), (70, 58507), (72, 58543), (73, 58555), (78, 58585), (80, 58597), (82, 58606), (84, 58630), (87, 58678), (89, 58699),

Gene: Shagrat_74 Start: 43582, Stop: 44052, Start Num: 28
Candidate Starts for Shagrat_74:
(14, 43498), (Start: 28 @43582 has 2 MA's), (49, 43672), (58, 43723), (59, 43756), (71, 43849), (80, 43933), (86, 44005),

Gene: SpeedDemon_1190 Start: 76290, Stop: 76790, Start Num: 34
Candidate Starts for SpeedDemon_1190:
(Start: 34 @76290 has 1 MA's), (42, 76332), (45, 76338), (51, 76359), (64, 76506), (66, 76512), (70, 76533), (71, 76539), (76, 76605),

Gene: Stormer_73 Start: 48378, Stop: 48839, Start Num: 32
Candidate Starts for Stormer_73:
(4, 48027), (6, 48120), (7, 48144), (27, 48342), (30, 48375), (Start: 32 @48378 has 39 MA's), (Start: 39 @48402 has 1 MA's), (46, 48435), (48, 48438), (85, 48780), (90, 48828),

Gene: SussRoloMann_59 Start: 39537, Stop: 40076, Start Num: 31
Candidate Starts for SussRoloMann_59:

(26, 39498), (Start: 31 @39537 has 15 MA's), (70, 39786), (77, 39861), (81, 39882), (82, 39885), (83, 39894),

Gene: Tillicus_68 Start: 49535, Stop: 50014, Start Num: 32
Candidate Starts for Tillicus_68:
(4, 49184), (6, 49277), (7, 49301), (27, 49499), (30, 49532), (Start: 32 @49535 has 39 MA's), (Start: 39 @49559 has 1 MA's), (46, 49592), (48, 49595), (58, 49652), (65, 49757), (85, 49937),

Gene: UtzChips_37 Start: 25178, Stop: 25612, Start Num: 38
Candidate Starts for UtzChips_37:
(Start: 38 @25178 has 2 MA's), (80, 25496), (86, 25568),

Gene: Weiss13_75 Start: 57898, Stop: 58413, Start Num: 23
Candidate Starts for Weiss13_75:
(20, 57886), (Start: 23 @57898 has 10 MA's), (41, 57985), (43, 57997), (52, 58036), (54, 58039), (57, 58051), (66, 58189), (67, 58195), (70, 58210), (72, 58246), (73, 58258), (78, 58288), (80, 58300), (82, 58309), (84, 58333), (85, 58366), (87, 58381), (89, 58402),

Gene: WheatThin_58 Start: 39525, Stop: 40064, Start Num: 31
Candidate Starts for WheatThin_58:
(26, 39486), (Start: 31 @39525 has 15 MA's), (70, 39774), (77, 39849), (81, 39870), (82, 39873), (83, 39882),

Gene: Wojtek_69 Start: 49317, Stop: 49778, Start Num: 32
Candidate Starts for Wojtek_69:
(4, 48966), (6, 49059), (7, 49083), (27, 49281), (30, 49314), (Start: 32 @49317 has 39 MA's), (Start: 39 @49341 has 1 MA's), (46, 49374), (48, 49377), (58, 49434), (85, 49719),

Gene: Xenia2_74 Start: 49619, Stop: 50194, Start Num: 32
Candidate Starts for Xenia2_74:
(Start: 32 @49619 has 39 MA's), (36, 49634), (58, 49736), (60, 49769), (74, 49919), (80, 49955), (91, 50078), (93, 50081), (99, 50183),

Gene: Yelo_74 Start: 58277, Stop: 58765, Start Num: 23
Candidate Starts for Yelo_74:
(20, 58265), (Start: 23 @58277 has 10 MA's), (41, 58364), (43, 58376), (52, 58415), (54, 58418), (57, 58430), (66, 58541), (70, 58562), (72, 58598), (73, 58610), (78, 58640), (80, 58652), (82, 58661), (84, 58685), (85, 58718), (87, 58733), (89, 58754),

Gene: Yikes_76 Start: 51176, Stop: 51637, Start Num: 32
Candidate Starts for Yikes_76:
(4, 50825), (6, 50918), (7, 50942), (27, 51140), (30, 51173), (Start: 32 @51176 has 39 MA's), (Start: 39 @51200 has 1 MA's), (46, 51233), (48, 51236), (85, 51578),

Gene: Zany_72 Start: 50659, Stop: 51096, Start Num: 39
Candidate Starts for Zany_72:
(4, 50284), (6, 50377), (7, 50401), (27, 50599), (30, 50632), (Start: 32 @50635 has 39 MA's), (Start: 39 @50659 has 1 MA's), (46, 50692), (48, 50695), (58, 50752), (71, 50887), (85, 51037), (92, 51091),

Gene: Zenon_77 Start: 58221, Stop: 58736, Start Num: 23
Candidate Starts for Zenon_77:
(20, 58209), (Start: 23 @58221 has 10 MA's), (41, 58308), (50, 58344), (52, 58359), (54, 58362), (57, 58374), (66, 58512), (70, 58533), (72, 58569), (73, 58581), (78, 58611), (80, 58623), (82, 58632), (84,

58656), (87, 58704), (89, 58725),