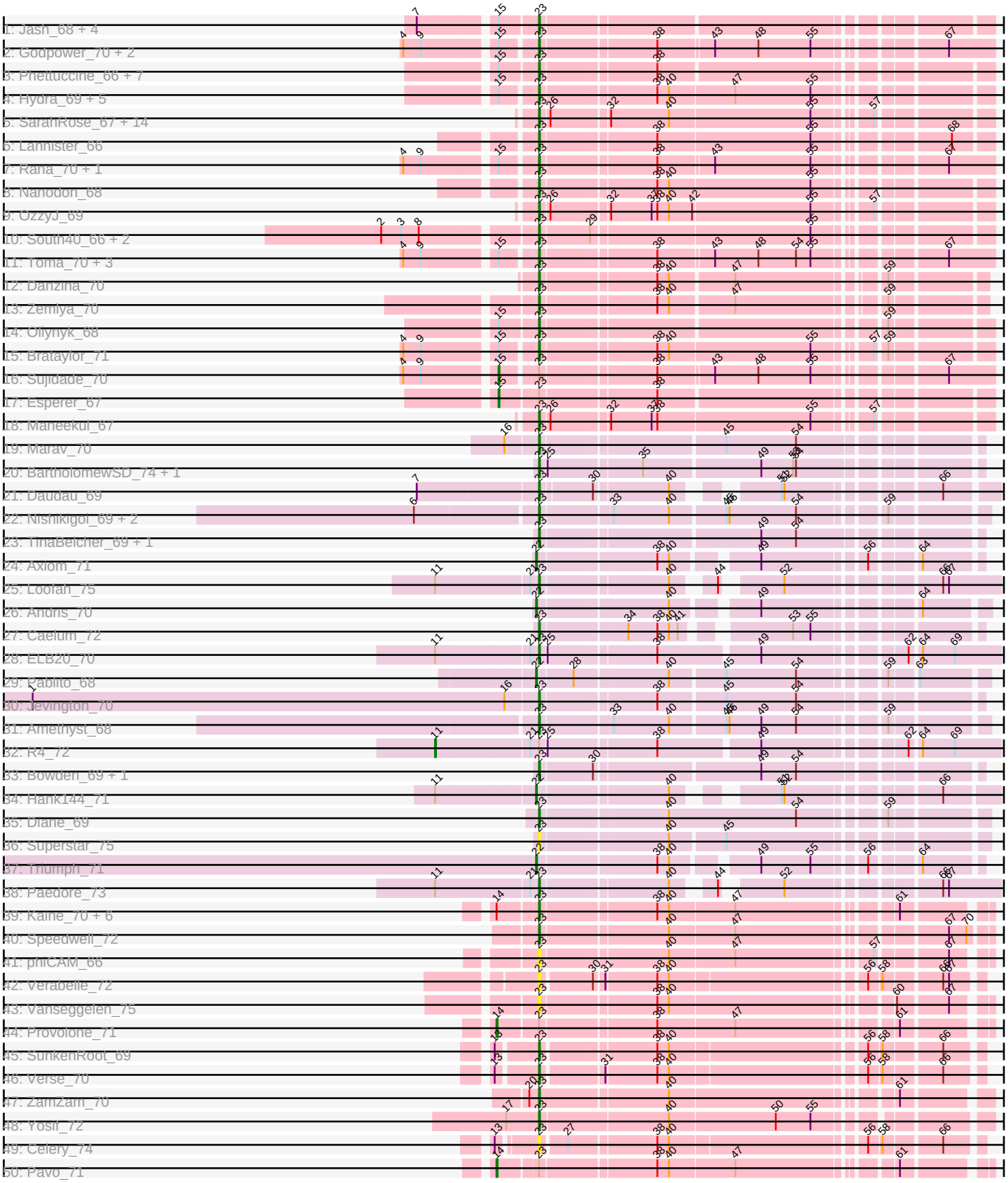
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1: Jash_68 + 4
2: Godpower_70 + 2
3: Phettuccine_66 + 7
4: Hydra_69 + 5
5: SarahRose_67 + 14
6: Lannister_66
7: Rana_70 + 1
8: Nanodon_68
9: OzzyJ_69
10: South40_66 + 2
11: Toma_70 + 3
12: Danzina_70
13: Zemlya_70
14: Olynyk_68
15: Brataylor_71
16: Sujidade_70
17: Esperer_67
18: Maneekul_67
19: Marav_70
20: BartholomewSD_74 + 1
21: Daudau_69
22: Nishikigoi_69 + 2
23: TinaBelcher_69 + 1
24: Axiom_71
25: Loofah_75
26: Andris_70
27: Caelum_72
28: ELB20_70
29: Pablito_68
30: Jevington_70
31: Amethyst_68
32: R4_72
33: Bowden_69 + 1
34: Hank144_71
35: Diane_69
36: Superstar_75
37: Triumph_71
38: Paedore_73
39: Kaine_70 + 6
40: Speedwell_72
41: phiCAM_66
42: Verabelle_72
43: Vanseggelen_75
44: Provolone_71
45: SunkenRoot_69
46: Verse_70
47: ZamZam_70
48: Yosif_72
49: Celery_74
50: Pavo_71

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51: Amela_69
52: Jhitchelle_67
53: Celia_73 + 1
54: Urza_75
55: VieEnRose_74
56: ChewyVIII_86

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 341976 Report

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

Pham number 341976 has 106 members, 6 are drafts.

Phages represented in each track:
• Track 1 : Jash_68, BryanRecycles_68, Izzy_68, Eddasa_69, Rusticus_68
• Track 2 : Godpower_70, Nabi_70, Lika_69
• Track 3 : Phettuccine_66, Aaronocolus_66, Indigo_65, Bovely_66, Nerdos_65, EnochSoames_70, Leviticus_67, Unstoppable_66
• Track 4 : Hydra_69, Ozzie_66, Caliburn_66, Legacy_66, BeardedLady_67, SunsetPointe_66
• Track 5 : SarahRose_67, BarryBee_70, TagePhighter_69, Whatever_67, Triste_68, Emaanora_70, Asten_67, TuanPN_65, Yasdnil_67, Snorlax_67, Hippo_67, Werner_67, Ejemplo_65, Dwayne_67, Chucky_67
• Track 6 : Lannister_66
• Track 7 : Rana_70, Lorelei_69
• Track 8 : Nanodon_68
• Track 9 : OzzyJ_69
• Track 10 : South40_66, Katalie_66, RedBear_67
• Track 11 : Toma_70, Celeste_70, Goby_70, Dattran_71
• Track 12 : Danzina_70
• Track 13 : Zemlya_70
• Track 14 : Oliynyk_68
• Track 15 : Brataylor_71
• Track 16 : Sujidade_70
• Track 17 : Esperer_67
• Track 18 : Maneekul_67
• Track 19 : Marav_70
• Track 20 : BartholomewSD_74, Alvy_74
• Track 21 : Daudau_69
• Track 22 : Nishikigoi_69, Tefunt_68, Haizum_68
• Track 23 : TinaBelcher_69, Thestral_71
• Track 24 : Axiom_71
• Track 25 : Loofah_75
• Track 26 : Andris_70
• Track 27 : Caelum_72
• Track 28 : ELB20_70
• Track 29 : Pablito_68
• Track 30 : Jevington_70
• Track 31 : Amethyst_68
• Track 32 : R4_72
• Track 33 : Bowden_69, TrvxScott_68

• Track 34 : Hank144_71
• Track 35 : Diane_69
• Track 36 : Superstar_75
• Track 37 : Triumph_71
• Track 38 : Paedore_73
• Track 39 : Kaine_70, ElGato_71, Sudan_70, Saftant_68, Dexers_68, Conan_71, Alsaber_70
• Track 40 : Speedwell_72
• Track 41 : phiCAM_66
• Track 42 : Verabelle_72
• Track 43 : Vanseggelen_75
• Track 44 : Provolone_71
• Track 45 : SunkenRoot_69
• Track 46 : Verse_70
• Track 47 : ZamZam_70
• Track 48 : Yosif_72
• Track 49 : Celery_74
• Track 50 : Pavo_71
• Track 51 : Amela_69
• Track 52 : Jhitchelle_67
• Track 53 : Celia_73, Itza_76
• Track 54 : Urza_75
• Track 55 : VieEnRose_74
• Track 56 : ChewyVIII_86

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

The start number called the most often in the published annotations is 23, it was called in 88 of the 100 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• Aaronocolus_66, Alsaber_70, Alvy_74, Amela_69, Amethyst_68, Asten_67, BarryBee_70, BartholomewSD_74, BeardedLady_67, Bovely_66, Bowden_69, Brataylor_71, BryanRecycles_68, Caelum_72, Caliburn_66, Celery_74, Celeste_70, Celia_73, Chucky_67, Conan_71, Danzina_70, Dattran_71, Daudau_69, Dexers_68, Diane_69, Dwayne_67, ELB20_70, Eddasa_69, Ejemplo_65, ElGato_71, Emaanora_70, EnochSoames_70, Goby_70, Godpower_70, Haizum_68, Hippo_67, Hydra_69, Indigo_65, Itza_76, Izzy_68, Jash_68, Jevington_70, Jhitchelle_67, Kaine_70, Katalie_66, Lannister_66, Legacy_66, Leviticus_67, Lika_69, Loofah_75, Lorelei_69, Maneekul_67, Marav_70, Nabi_70, Nanodon_68, Nerdos_65, Nishikigoi_69, Oliynyk_68, Ozzie_66, OzzyJ_69, Paedore_73, Phettuccine_66, Rana_70, RedBear_67, Rusticus_68, Saftant_68, SarahRose_67, Snorlax_67, South40_66, Speedwell_72, Sudan_70, SunkenRoot_69, SunsetPointe_66, Superstar_75, TagePhighter_69, Tefunt_68, Thestral_71, TinaBelcher_69, Toma_70, Triste_68, TrvxScott_68, TuanPN_65, Unstoppable_66, Urza_75, Vanseggelen_75, Verabelle_72, Verse_70, Werner_67, Whatever_67, Yasdnil_67, Yosif_72, ZamZam_70, Zemlya_70, phiCAM_66,

Genes that have the "Most Annotated" start but do not call it:
• Esperer_67, Pavo_71, Provolone_71, R4_72, Sujidade_70, VieEnRose_74,

Genes that do not have the "Most Annotated" start:
• Andris_70, Axiom_71, ChewyVIII_86, Hank144_71, Pablito_68, Triumph_71,

Summary by start number:

Start 11:
• Found in 5 of 106 (4.7%) of genes in pham
• Manual Annotations of this start: 1 of 100
• Called 20.0% of time when present
• Phage (with cluster) where this start called: R4_72 (BD2),

Start 14:
• Found in 9 of 106 (8.5%) of genes in pham
• Manual Annotations of this start: 2 of 100
• Called 22.2% of time when present
• Phage (with cluster) where this start called: Pavo_71 (BD3), Provolone_71 (BD3),

Start 15:
• Found in 33 of 106 (31.1%) of genes in pham
• Manual Annotations of this start: 3 of 100
• Called 9.1% of time when present
• Phage (with cluster) where this start called: ChewyVIII_86 (singleton), Esperer_67 (BD1), Sujidade_70 (BD1),

Start 22:
• Found in 5 of 106 (4.7%) of genes in pham
• Manual Annotations of this start: 5 of 100
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Andris_70 (BD2), Axiom_71 (BD2), Hank144_71 (BD2), Pablito_68 (BD2), Triumph_71 (BD2),

Start 23:
• Found in 100 of 106 (94.3%) of genes in pham
• Manual Annotations of this start: 88 of 100
• Called 94.0% of time when present
• Phage (with cluster) where this start called: Aaronocolus_66 (BD1), Alsaber_70 (BD3), Alvy_74 (BD2), Amela_69 (BD3), Amethyst_68 (BD2), Asten_67 (BD1), BarryBee_70 (BD1), BartholomewSD_74 (BD2), BeardedLady_67 (BD1), Bovely_66 (BD1), Bowden_69 (BD2), Brataylor_71 (BD1), BryanRecycles_68 (BD1), Caelum_72 (BD2), Caliburn_66 (BD1), Celery_74 (BD3), Celeste_70 (BD1), Celia_73 (BD6), Chucky_67 (BD1), Conan_71 (BD3), Danzina_70 (BD1), Dattran_71 (BD1), Daudau_69 (BD2), Dexers_68 (BD3), Diane_69 (BD2), Dwayne_67 (BD1), ELB20_70 (BD2), Eddasa_69 (BD1), Ejemplo_65 (BD1), ElGato_71 (BD3), Emaanora_70 (BD1), EnochSoames_70 (BD1), Goby_70 (BD1), Godpower_70 (BD1), Haizum_68 (BD2), Hippo_67 (BD1), Hydra_69 (BD1), Indigo_65 (BD1), Itza_76 (BD6), Izzy_68 (BD1), Jash_68 (BD1), Jevington_70 (BD2), Jhitchelle_67 (BD3), Kaine_70 (BD3), Katalie_66 (BD1), Lannister_66 (BD1), Legacy_66 (BD1), Leviticus_67 (BD1), Lika_69 (BD1), Loofah_75 (BD2), Lorelei_69 (BD1), Maneekul_67 (BD1), Marav_70 (BD2), Nabi_70 (BD1), Nanodon_68 (BD1), Nerdos_65 (BD1), Nishikigoi_69 (BD2), Oliynyk_68 (BD1), Ozzie_66 (BD1), OzzyJ_69 (BD1), Paedore_73 (BD2), Phettuccine_66 (BD1), Rana_70 (BD1), RedBear_67 (BD1), Rusticus_68 (BD1), Saftant_68 (BD3), SarahRose_67 (BD1), Snorlax_67 (BD1), South40_66 (BD1),

Speedwell_72 (BD3), Sudan_70 (BD3), SunkenRoot_69 (BD3), SunsetPointe_66 (BD1), Superstar_75 (BD2), TagePhighter_69 (BD1), Tefunt_68 (BD2), Thestral_71 (BD2), TinaBelcher_69 (BD2), Toma_70 (BD1), Triste_68 (BD1), TrvxScott_68 (BD2), TuanPN_65 (BD1), Unstoppable_66 (BD1), Urza_75 (BD6), Vanseggelen_75 (BD3), Verabelle_72 (BD3), Verse_70 (BD3), Werner_67 (BD1), Whatever_67 (BD1), Yasdnil_67 (BD1), Yosif_72 (BD3), ZamZam_70 (BD3), Zemlya_70 (BD1), phiCAM_66 (BD3),

Start 24:
• Found in 4 of 106 (3.8%) of genes in pham
• Manual Annotations of this start: 1 of 100
• Called 25.0% of time when present
• Phage (with cluster) where this start called: VieEnRose_74 (BD6),

Summary by clusters:

There are 5 clusters represented in this pham: singleton, BD6, BD1, BD3, BD2,

Info for manual annotations of cluster BD1:
•Start number 15 was manually annotated 2 times for cluster BD1.
•Start number 23 was manually annotated 53 times for cluster BD1.

Info for manual annotations of cluster BD2:
•Start number 11 was manually annotated 1 time for cluster BD2.
•Start number 22 was manually annotated 5 times for cluster BD2.
•Start number 23 was manually annotated 18 times for cluster BD2.

Info for manual annotations of cluster BD3:
•Start number 14 was manually annotated 2 times for cluster BD3.
•Start number 23 was manually annotated 14 times for cluster BD3.

Info for manual annotations of cluster BD6:
•Start number 23 was manually annotated 3 times for cluster BD6.
•Start number 24 was manually annotated 1 time for cluster BD6.

Gene Information:

Gene: Aaronocolus_66 Start: 45400, Stop: 44981, Start Num: 23
Candidate Starts for Aaronocolus_66:
(Start: 15 @45436 has 3 MA's), (Start: 23 @45400 has 88 MA's), (38, 45289),

Gene: Alsaber_70 Start: 45538, Stop: 45128, Start Num: 23
Candidate Starts for Alsaber_70:
(Start: 14 @45571 has 2 MA's), (Start: 23 @45538 has 88 MA's), (38, 45427), (40, 45415), (47, 45349), (61, 45205),

Gene: Alvy_74 Start: 47158, Stop: 46745, Start Num: 23
Candidate Starts for Alvy_74:
(Start: 23 @47158 has 88 MA's), (25, 47152), (35, 47062), (49, 46945), (53, 46912), (54, 46909),

Gene: Amela_69 Start: 46182, Stop: 45775, Start Num: 23

Candidate Starts for Amela_69:
(13, 46218), (Start: 23 @46182 has 88 MA's), (38, 46074), (40, 46062), (43, 46020), (56, 45876), (58, 45864), (66, 45810),

Gene: Amethyst_68 Start: 44179, Stop: 43766, Start Num: 23
Candidate Starts for Amethyst_68:
(Start: 23 @44179 has 88 MA's), (33, 44113), (40, 44056), (45, 44002), (46, 43999), (49, 43966), (54, 43930), (59, 43855),

Gene: Andris_70 Start: 45059, Stop: 44655, Start Num: 22
Candidate Starts for Andris_70:
(Start: 22 @45059 has 5 MA's), (40, 44930), (49, 44855), (64, 44717),

Gene: Asten_67 Start: 47722, Stop: 47303, Start Num: 23
Candidate Starts for Asten_67:
(Start: 23 @47722 has 88 MA's), (26, 47713), (32, 47659), (40, 47599), (55, 47455), (57, 47407),

Gene: Axiom_71 Start: 45808, Stop: 45410, Start Num: 22
Candidate Starts for Axiom_71:
(Start: 22 @45808 has 5 MA's), (38, 45691), (40, 45679), (49, 45604), (56, 45508), (64, 45466),

Gene: BarryBee_70 Start: 47696, Stop: 47277, Start Num: 23
Candidate Starts for BarryBee_70:
(Start: 23 @47696 has 88 MA's), (26, 47687), (32, 47633), (40, 47573), (55, 47429), (57, 47381),

Gene: BartholomewSD_74 Start: 46277, Stop: 45864, Start Num: 23
Candidate Starts for BartholomewSD_74:
(Start: 23 @46277 has 88 MA's), (25, 46271), (35, 46181), (49, 46064), (53, 46031), (54, 46028),

Gene: BeardedLady_67 Start: 45783, Stop: 45364, Start Num: 23
Candidate Starts for BeardedLady_67:
(Start: 15 @45816 has 3 MA's), (Start: 23 @45783 has 88 MA's), (38, 45672), (40, 45660), (47, 45594), (55, 45516),

Gene: Bovely_66 Start: 45403, Stop: 44984, Start Num: 23
Candidate Starts for Bovely_66:
(Start: 15 @45439 has 3 MA's), (Start: 23 @45403 has 88 MA's), (38, 45292),

Gene: Bowden_69 Start: 46847, Stop: 46434, Start Num: 23
Candidate Starts for Bowden_69:
(Start: 23 @46847 has 88 MA's), (30, 46796), (49, 46634), (54, 46598),

Gene: Brataylor_71 Start: 47249, Stop: 46830, Start Num: 23
Candidate Starts for Brataylor_71:
(4, 47369), (9, 47351), (Start: 15 @47282 has 3 MA's), (Start: 23 @47249 has 88 MA's), (38, 47138), (40, 47126), (55, 46982), (57, 46934), (59, 46925),

Gene: BryanRecycles_68 Start: 45898, Stop: 45479, Start Num: 23
Candidate Starts for BryanRecycles_68:
(7, 46006), (Start: 15 @45934 has 3 MA's), (Start: 23 @45898 has 88 MA's),

Gene: Caelum_72 Start: 45115, Stop: 44732, Start Num: 23
Candidate Starts for Caelum_72:

(Start: 23 @45115 has 88 MA's), (34, 45034), (38, 45004), (40, 44992), (41, 44983), (53, 44893), (55, 44875),

Gene: Caliburn_66 Start: 45791, Stop: 45372, Start Num: 23
Candidate Starts for Caliburn_66:
(Start: 15 @45824 has 3 MA's), (Start: 23 @45791 has 88 MA's), (38, 45680), (40, 45668), (47, 45602), (55, 45524),

Gene: Celery_74 Start: 45236, Stop: 44829, Start Num: 23
Candidate Starts for Celery_74:
(13, 45269), (Start: 23 @45236 has 88 MA's), (27, 45212), (38, 45128), (40, 45116), (56, 44930), (58, 44918), (66, 44864),

Gene: Celeste_70 Start: 46717, Stop: 46295, Start Num: 23
Candidate Starts for Celeste_70:
(4, 46837), (9, 46819), (Start: 15 @46750 has 3 MA's), (Start: 23 @46717 has 88 MA's), (38, 46606), (43, 46552), (48, 46507), (54, 46468), (55, 46453), (67, 46342),

Gene: Celia_73 Start: 47774, Stop: 47352, Start Num: 23
Candidate Starts for Celia_73:
(18, 47792), (19, 47786), (Start: 23 @47774 has 88 MA's), (Start: 24 @47768 has 1 MA's), (40, 47651), (42, 47627), (47, 47585), (59, 47450), (61, 47441), (65, 47417), (67, 47396),

Gene: ChewyVIII_86 Start: 63930, Stop: 64469, Start Num: 15
Candidate Starts for ChewyVIII_86:
(5, 63840), (7, 63846), (12, 63876), (Start: 15 @63930 has 3 MA's), (35, 64077), (36, 64080), (39, 64101), (45, 64164), (59, 64332), (67, 64395), (68, 64398), (71, 64422),

Gene: Chucky_67 Start: 47757, Stop: 47338, Start Num: 23
Candidate Starts for Chucky_67:
(Start: 23 @47757 has 88 MA's), (26, 47748), (32, 47694), (40, 47634), (55, 47490), (57, 47442),

Gene: Conan_71 Start: 45790, Stop: 45380, Start Num: 23
Candidate Starts for Conan_71:
(Start: 14 @45823 has 2 MA's), (Start: 23 @45790 has 88 MA's), (38, 45679), (40, 45667), (47, 45601), (61, 45457),

Gene: Danzina_70 Start: 46953, Stop: 46543, Start Num: 23
Candidate Starts for Danzina_70:
(Start: 23 @46953 has 88 MA's), (38, 46842), (40, 46830), (47, 46767), (59, 46632),

Gene: Dattran_71 Start: 47170, Stop: 46748, Start Num: 23
Candidate Starts for Dattran_71:
(4, 47290), (9, 47272), (Start: 15 @47203 has 3 MA's), (Start: 23 @47170 has 88 MA's), (38, 47059), (43, 47005), (48, 46960), (54, 46921), (55, 46906), (67, 46795),

Gene: Daudau_69 Start: 44691, Stop: 44308, Start Num: 23
Candidate Starts for Daudau_69:
(7, 44811), (Start: 23 @44691 has 88 MA's), (30, 44643), (40, 44571), (51, 44496), (52, 44493), (66, 44358),

Gene: Dexers_68 Start: 45764, Stop: 45354, Start Num: 23
Candidate Starts for Dexers_68:

(Start: 14 @45797 has 2 MA's), (Start: 23 @45764 has 88 MA's), (38, 45653), (40, 45641), (47, 45575), (61, 45431),

Gene: Diane_69 Start: 45270, Stop: 44851, Start Num: 23
Candidate Starts for Diane_69:
(Start: 23 @45270 has 88 MA's), (40, 45147), (54, 45015), (59, 44940),

Gene: Dwayne_67 Start: 47745, Stop: 47326, Start Num: 23
Candidate Starts for Dwayne_67:
(Start: 23 @47745 has 88 MA's), (26, 47736), (32, 47682), (40, 47622), (55, 47478), (57, 47430),

Gene: ELB20_70 Start: 45570, Stop: 45142, Start Num: 23
Candidate Starts for ELB20_70:
(Start: 11 @45672 has 1 MA's), (21, 45579), (Start: 23 @45570 has 88 MA's), (25, 45564), (38, 45459), (49, 45360), (62, 45231), (64, 45222), (69, 45189),

Gene: Eddasa_69 Start: 46437, Stop: 46018, Start Num: 23
Candidate Starts for Eddasa_69:
(7, 46545), (Start: 15 @46473 has 3 MA's), (Start: 23 @46437 has 88 MA's),

Gene: Ejemplo_65 Start: 47683, Stop: 47264, Start Num: 23
Candidate Starts for Ejemplo_65:
(Start: 23 @47683 has 88 MA's), (26, 47674), (32, 47620), (40, 47560), (55, 47416), (57, 47368),

Gene: ElGato_71 Start: 45667, Stop: 45257, Start Num: 23
Candidate Starts for ElGato_71:
(Start: 14 @45700 has 2 MA's), (Start: 23 @45667 has 88 MA's), (38, 45556), (40, 45544), (47, 45478), (61, 45334),

Gene: Emaanora_70 Start: 47669, Stop: 47250, Start Num: 23
Candidate Starts for Emaanora_70:
(Start: 23 @47669 has 88 MA's), (26, 47660), (32, 47606), (40, 47546), (55, 47402), (57, 47354),

Gene: EnochSoames_70 Start: 45695, Stop: 45276, Start Num: 23
Candidate Starts for EnochSoames_70:
(Start: 15 @45731 has 3 MA's), (Start: 23 @45695 has 88 MA's), (38, 45584),

Gene: Esperer_67 Start: 45782, Stop: 45327, Start Num: 15
Candidate Starts for Esperer_67:
(Start: 15 @45782 has 3 MA's), (Start: 23 @45746 has 88 MA's), (38, 45635),

Gene: Goby_70 Start: 47587, Stop: 47165, Start Num: 23
Candidate Starts for Goby_70:
(4, 47707), (9, 47689), (Start: 15 @47620 has 3 MA's), (Start: 23 @47587 has 88 MA's), (38, 47476), (43, 47422), (48, 47377), (54, 47338), (55, 47323), (67, 47212),

Gene: Godpower_70 Start: 46879, Stop: 46457, Start Num: 23
Candidate Starts for Godpower_70:
(4, 46999), (9, 46981), (Start: 15 @46912 has 3 MA's), (Start: 23 @46879 has 88 MA's), (38, 46768), (43, 46714), (48, 46669), (55, 46615), (67, 46504),

Gene: Haizum_68 Start: 44987, Stop: 44574, Start Num: 23
Candidate Starts for Haizum_68:

(6, 45107), (Start: 23 @44987 has 88 MA's), (33, 44921), (40, 44864), (45, 44810), (46, 44807), (54, 44738), (59, 44663),

Gene: Hank144_71 Start: 45801, Stop: 45412, Start Num: 22
Candidate Starts for Hank144_71:
(Start: 11 @45900 has 1 MA's), (Start: 22 @45801 has 5 MA's), (40, 45678), (51, 45603), (52, 45600), (66, 45465),

Gene: Hippo_67 Start: 47732, Stop: 47313, Start Num: 23
Candidate Starts for Hippo_67:
(Start: 23 @47732 has 88 MA's), (26, 47723), (32, 47669), (40, 47609), (55, 47465), (57, 47417),

Gene: Hydra_69 Start: 46593, Stop: 46174, Start Num: 23
Candidate Starts for Hydra_69:
(Start: 15 @46626 has 3 MA's), (Start: 23 @46593 has 88 MA's), (38, 46482), (40, 46470), (47, 46404), (55, 46326),

Gene: Indigo_65 Start: 45396, Stop: 44977, Start Num: 23
Candidate Starts for Indigo_65:
(Start: 15 @45432 has 3 MA's), (Start: 23 @45396 has 88 MA's), (38, 45285),

Gene: Itza_76 Start: 47707, Stop: 47285, Start Num: 23
Candidate Starts for Itza_76:
(18, 47725), (19, 47719), (Start: 23 @47707 has 88 MA's), (Start: 24 @47701 has 1 MA's), (40, 47584), (42, 47560), (47, 47518), (59, 47383), (61, 47374), (65, 47350), (67, 47329),

Gene: Izzy_68 Start: 45945, Stop: 45526, Start Num: 23
Candidate Starts for Izzy_68:
(7, 46053), (Start: 15 @45981 has 3 MA's), (Start: 23 @45945 has 88 MA's),

Gene: Jash_68 Start: 45898, Stop: 45479, Start Num: 23
Candidate Starts for Jash_68:
(7, 46006), (Start: 15 @45934 has 3 MA's), (Start: 23 @45898 has 88 MA's),

Gene: Jevington_70 Start: 44156, Stop: 43743, Start Num: 23
Candidate Starts for Jevington_70:
(1, 44675), (16, 44186), (Start: 23 @44156 has 88 MA's), (38, 44045), (45, 43979), (54, 43907),

Gene: Jhitchelle_67 Start: 44848, Stop: 44444, Start Num: 23
Candidate Starts for Jhitchelle_67:
(10, 44944), (12, 44926), (Start: 23 @44848 has 88 MA's), (31, 44791), (38, 44740), (40, 44728), (56, 44542), (58, 44530), (66, 44476),

Gene: Kaine_70 Start: 45562, Stop: 45152, Start Num: 23
Candidate Starts for Kaine_70:
(Start: 14 @45595 has 2 MA's), (Start: 23 @45562 has 88 MA's), (38, 45451), (40, 45439), (47, 45373), (61, 45229),

Gene: Katalie_66 Start: 47468, Stop: 47049, Start Num: 23
Candidate Starts for Katalie_66:
(2, 47612), (3, 47591), (8, 47573), (Start: 23 @47468 has 88 MA's), (29, 47420), (55, 47201),

Gene: Lannister_66 Start: 46222, Stop: 45803, Start Num: 23

Candidate Starts for Lannister_66:
(Start: 23 @46222 has 88 MA's), (38, 46111), (55, 45955), (68, 45841),

Gene: Legacy_66 Start: 45782, Stop: 45363, Start Num: 23
Candidate Starts for Legacy_66:
(Start: 15 @45815 has 3 MA's), (Start: 23 @45782 has 88 MA's), (38, 45671), (40, 45659), (47, 45593), (55, 45515),

Gene: Leviticus_67 Start: 45933, Stop: 45514, Start Num: 23
Candidate Starts for Leviticus_67:
(Start: 15 @45969 has 3 MA's), (Start: 23 @45933 has 88 MA's), (38, 45822),

Gene: Lika_69 Start: 47432, Stop: 47010, Start Num: 23
Candidate Starts for Lika_69:
(4, 47552), (9, 47534), (Start: 15 @47465 has 3 MA's), (Start: 23 @47432 has 88 MA's), (38, 47321), (43, 47267), (48, 47222), (55, 47168), (67, 47057),

Gene: Loofah_75 Start: 46518, Stop: 46123, Start Num: 23
Candidate Starts for Loofah_75:
(Start: 11 @46620 has 1 MA's), (21, 46527), (Start: 23 @46518 has 88 MA's), (40, 46395), (44, 46365), (52, 46317), (66, 46182), (67, 46176),

Gene: Lorelei_69 Start: 46723, Stop: 46301, Start Num: 23
Candidate Starts for Lorelei_69:
(4, 46843), (9, 46825), (Start: 15 @46756 has 3 MA's), (Start: 23 @46723 has 88 MA's), (38, 46612), (43, 46558), (55, 46459), (67, 46348),

Gene: Maneekul_67 Start: 47762, Stop: 47343, Start Num: 23
Candidate Starts for Maneekul_67:
(Start: 23 @47762 has 88 MA's), (26, 47753), (32, 47699), (37, 47657), (38, 47651), (55, 47495), (57, 47447),

Gene: Marav_70 Start: 44143, Stop: 43730, Start Num: 23
Candidate Starts for Marav_70:
(16, 44173), (Start: 23 @44143 has 88 MA's), (45, 43966), (54, 43894),

Gene: Nabi_70 Start: 47292, Stop: 46870, Start Num: 23
Candidate Starts for Nabi_70:
(4, 47412), (9, 47394), (Start: 15 @47325 has 3 MA's), (Start: 23 @47292 has 88 MA's), (38, 47181), (43, 47127), (48, 47082), (55, 47028), (67, 46917),

Gene: Nanodon_68 Start: 46151, Stop: 45732, Start Num: 23
Candidate Starts for Nanodon_68:
(Start: 23 @46151 has 88 MA's), (38, 46040), (40, 46028), (55, 45884),

Gene: Nerdos_65 Start: 45395, Stop: 44976, Start Num: 23
Candidate Starts for Nerdos_65:
(Start: 15 @45431 has 3 MA's), (Start: 23 @45395 has 88 MA's), (38, 45284),

Gene: Nishikigoi_69 Start: 44987, Stop: 44574, Start Num: 23
Candidate Starts for Nishikigoi_69:
(6, 45107), (Start: 23 @44987 has 88 MA's), (33, 44921), (40, 44864), (45, 44810), (46, 44807), (54, 44738), (59, 44663),

Gene: Oliynyk_68 Start: 45898, Stop: 45479, Start Num: 23
Candidate Starts for Oliynyk_68:
(Start: 15 @45934 has 3 MA's), (Start: 23 @45898 has 88 MA's), (59, 45574),

Gene: Ozzie_66 Start: 45791, Stop: 45372, Start Num: 23
Candidate Starts for Ozzie_66:
(Start: 15 @45824 has 3 MA's), (Start: 23 @45791 has 88 MA's), (38, 45680), (40, 45668), (47, 45602), (55, 45524),

Gene: OzzyJ_69 Start: 47665, Stop: 47246, Start Num: 23
Candidate Starts for OzzyJ_69:
(Start: 23 @47665 has 88 MA's), (26, 47656), (32, 47602), (37, 47560), (38, 47554), (40, 47542), (42, 47518), (55, 47398), (57, 47350),

Gene: Pablito_68 Start: 44389, Stop: 43976, Start Num: 22
Candidate Starts for Pablito_68:
(Start: 22 @44389 has 5 MA's), (28, 44356), (40, 44266), (45, 44212), (54, 44140), (59, 44065), (63, 44041),

Gene: Paedore_73 Start: 46884, Stop: 46489, Start Num: 23
Candidate Starts for Paedore_73:
(Start: 11 @46986 has 1 MA's), (21, 46893), (Start: 23 @46884 has 88 MA's), (40, 46761), (44, 46731), (52, 46683), (66, 46548), (67, 46542),

Gene: Pavo_71 Start: 45771, Stop: 45328, Start Num: 14
Candidate Starts for Pavo_71:
(Start: 14 @45771 has 2 MA's), (Start: 23 @45738 has 88 MA's), (38, 45627), (40, 45615), (47, 45549), (61, 45405),

Gene: Phettuccine_66 Start: 45396, Stop: 44977, Start Num: 23
Candidate Starts for Phettuccine_66:
(Start: 15 @45432 has 3 MA's), (Start: 23 @45396 has 88 MA's), (38, 45285),

Gene: Provolone_71 Start: 45912, Stop: 45469, Start Num: 14
Candidate Starts for Provolone_71:
(Start: 14 @45912 has 2 MA's), (Start: 23 @45879 has 88 MA's), (38, 45768), (47, 45690), (61, 45546),

Gene: R4_72 Start: 45832, Stop: 45302, Start Num: 11
Candidate Starts for R4_72:
(Start: 11 @45832 has 1 MA's), (21, 45739), (Start: 23 @45730 has 88 MA's), (25, 45724), (38, 45619), (49, 45520), (62, 45391), (64, 45382), (69, 45349),

Gene: Rana_70 Start: 47145, Stop: 46723, Start Num: 23
Candidate Starts for Rana_70:
(4, 47265), (9, 47247), (Start: 15 @47178 has 3 MA's), (Start: 23 @47145 has 88 MA's), (38, 47034), (43, 46980), (55, 46881), (67, 46770),

Gene: RedBear_67 Start: 47468, Stop: 47049, Start Num: 23
Candidate Starts for RedBear_67:
(2, 47612), (3, 47591), (8, 47573), (Start: 23 @47468 has 88 MA's), (29, 47420), (55, 47201),

Gene: Rusticus_68 Start: 45898, Stop: 45479, Start Num: 23

Candidate Starts for Rusticus_68:
(7, 46006), (Start: 15 @45934 has 3 MA's), (Start: 23 @45898 has 88 MA's),

Gene: Saftant_68 Start: 45610, Stop: 45200, Start Num: 23
Candidate Starts for Saftant_68:
(Start: 14 @45643 has 2 MA's), (Start: 23 @45610 has 88 MA's), (38, 45499), (40, 45487), (47, 45421), (61, 45277),

Gene: SarahRose_67 Start: 47732, Stop: 47313, Start Num: 23
Candidate Starts for SarahRose_67:
(Start: 23 @47732 has 88 MA's), (26, 47723), (32, 47669), (40, 47609), (55, 47465), (57, 47417),

Gene: Snorlax_67 Start: 47757, Stop: 47338, Start Num: 23
Candidate Starts for Snorlax_67:
(Start: 23 @47757 has 88 MA's), (26, 47748), (32, 47694), (40, 47634), (55, 47490), (57, 47442),

Gene: South40_66 Start: 47468, Stop: 47049, Start Num: 23
Candidate Starts for South40_66:
(2, 47612), (3, 47591), (8, 47573), (Start: 23 @47468 has 88 MA's), (29, 47420), (55, 47201),

Gene: Speedwell_72 Start: 46319, Stop: 45903, Start Num: 23
Candidate Starts for Speedwell_72:
(Start: 23 @46319 has 88 MA's), (40, 46196), (47, 46130), (67, 45941), (70, 45923),

Gene: Sudan_70 Start: 45545, Stop: 45135, Start Num: 23
Candidate Starts for Sudan_70:
(Start: 14 @45578 has 2 MA's), (Start: 23 @45545 has 88 MA's), (38, 45434), (40, 45422), (47, 45356), (61, 45212),

Gene: Sujidade_70 Start: 47762, Stop: 47307, Start Num: 15
Candidate Starts for Sujidade_70:
(4, 47849), (9, 47831), (Start: 15 @47762 has 3 MA's), (Start: 23 @47729 has 88 MA's), (38, 47618), (43, 47564), (48, 47519), (55, 47465), (67, 47354),

Gene: SunkenRoot_69 Start: 45909, Stop: 45502, Start Num: 23
Candidate Starts for SunkenRoot_69:
(13, 45945), (Start: 23 @45909 has 88 MA's), (38, 45801), (40, 45789), (56, 45603), (58, 45591), (66, 45537),

Gene: SunsetPointe_66 Start: 45798, Stop: 45379, Start Num: 23
Candidate Starts for SunsetPointe_66:
(Start: 15 @45831 has 3 MA's), (Start: 23 @45798 has 88 MA's), (38, 45687), (40, 45675), (47, 45609), (55, 45531),

Gene: Superstar_75 Start: 45152, Stop: 44739, Start Num: 23
Candidate Starts for Superstar_75:
(Start: 23 @45152 has 88 MA's), (40, 45029), (45, 44975),

Gene: TagePhighter_69 Start: 47732, Stop: 47313, Start Num: 23
Candidate Starts for TagePhighter_69:
(Start: 23 @47732 has 88 MA's), (26, 47723), (32, 47669), (40, 47609), (55, 47465), (57, 47417),

Gene: Tefunt_68 Start: 44901, Stop: 44488, Start Num: 23

Candidate Starts for Tefunt_68:
(6, 45021), (Start: 23 @44901 has 88 MA's), (33, 44835), (40, 44778), (45, 44724), (46, 44721), (54, 44652), (59, 44577),

Gene: Thestral_71 Start: 46874, Stop: 46461, Start Num: 23
Candidate Starts for Thestral_71:
(Start: 23 @46874 has 88 MA's), (49, 46661), (54, 46625),

Gene: TinaBelcher_69 Start: 46736, Stop: 46323, Start Num: 23
Candidate Starts for TinaBelcher_69:
(Start: 23 @46736 has 88 MA's), (49, 46523), (54, 46487),

Gene: Toma_70 Start: 47590, Stop: 47168, Start Num: 23
Candidate Starts for Toma_70:
(4, 47710), (9, 47692), (Start: 15 @47623 has 3 MA's), (Start: 23 @47590 has 88 MA's), (38, 47479), (43, 47425), (48, 47380), (54, 47341), (55, 47326), (67, 47215),

Gene: Triste_68 Start: 47731, Stop: 47312, Start Num: 23
Candidate Starts for Triste_68:
(Start: 23 @47731 has 88 MA's), (26, 47722), (32, 47668), (40, 47608), (55, 47464), (57, 47416),

Gene: Triumph_71 Start: 45546, Stop: 45148, Start Num: 22
Candidate Starts for Triumph_71:
(Start: 22 @45546 has 5 MA's), (38, 45429), (40, 45417), (49, 45342), (55, 45291), (56, 45246), (64, 45204),

Gene: TrvxScott_68 Start: 46841, Stop: 46428, Start Num: 23
Candidate Starts for TrvxScott_68:
(Start: 23 @46841 has 88 MA's), (30, 46790), (49, 46628), (54, 46592),

Gene: TuanPN_65 Start: 47683, Stop: 47264, Start Num: 23
Candidate Starts for TuanPN_65:
(Start: 23 @47683 has 88 MA's), (26, 47674), (32, 47620), (40, 47560), (55, 47416), (57, 47368),

Gene: Unstoppable_66 Start: 45394, Stop: 44975, Start Num: 23
Candidate Starts for Unstoppable_66:
(Start: 15 @45430 has 3 MA's), (Start: 23 @45394 has 88 MA's), (38, 45283),

Gene: Urza_75 Start: 47728, Stop: 47306, Start Num: 23
Candidate Starts for Urza_75:
(18, 47746), (19, 47740), (Start: 23 @47728 has 88 MA's), (Start: 24 @47722 has 1 MA's), (40, 47605), (42, 47581), (47, 47539), (59, 47404), (61, 47395), (65, 47371), (67, 47350),

Gene: Vanseggelen_75 Start: 45417, Stop: 45007, Start Num: 23
Candidate Starts for Vanseggelen_75:
(Start: 23 @45417 has 88 MA's), (38, 45306), (40, 45294), (60, 45087), (67, 45039),

Gene: Verabelle_72 Start: 44853, Stop: 44446, Start Num: 23
Candidate Starts for Verabelle_72:
(Start: 23 @44853 has 88 MA's), (30, 44805), (31, 44796), (38, 44745), (40, 44733), (56, 44547), (58, 44535), (66, 44481), (67, 44475),

Gene: Verse_70 Start: 46173, Stop: 45766, Start Num: 23

Candidate Starts for Verse_70:
(13, 46209), (Start: 23 @46173 has 88 MA's), (31, 46116), (38, 46065), (40, 46053), (56, 45867), (58, 45855), (66, 45801),

Gene: VieEnRose_74 Start: 47463, Stop: 47047, Start Num: 24
Candidate Starts for VieEnRose_74:
(18, 47487), (19, 47481), (Start: 23 @47469 has 88 MA's), (Start: 24 @47463 has 1 MA's), (40, 47346), (42, 47322), (47, 47280), (59, 47145), (67, 47091),

Gene: Werner_67 Start: 47729, Stop: 47310, Start Num: 23
Candidate Starts for Werner_67:
(Start: 23 @47729 has 88 MA's), (26, 47720), (32, 47666), (40, 47606), (55, 47462), (57, 47414),

Gene: Whatever_67 Start: 47754, Stop: 47335, Start Num: 23
Candidate Starts for Whatever_67:
(Start: 23 @47754 has 88 MA's), (26, 47745), (32, 47691), (40, 47631), (55, 47487), (57, 47439),

Gene: Yasdnil_67 Start: 47781, Stop: 47362, Start Num: 23
Candidate Starts for Yasdnil_67:
(Start: 23 @47781 has 88 MA's), (26, 47772), (32, 47718), (40, 47658), (55, 47514), (57, 47466),

Gene: Yosif_72 Start: 46394, Stop: 45975, Start Num: 23
Candidate Starts for Yosif_72:
(17, 46427), (Start: 23 @46394 has 88 MA's), (40, 46268), (50, 46160), (55, 46124),

Gene: ZamZam_70 Start: 45937, Stop: 45521, Start Num: 23
Candidate Starts for ZamZam_70:
(20, 45946), (Start: 23 @45937 has 88 MA's), (40, 45811), (61, 45601),

Gene: Zemlya_70 Start: 47258, Stop: 46848, Start Num: 23
Candidate Starts for Zemlya_70:
(Start: 23 @47258 has 88 MA's), (38, 47147), (40, 47135), (47, 47072), (59, 46937),

Gene: phiCAM_66 Start: 46935, Stop: 46525, Start Num: 23
Candidate Starts for phiCAM_66:
(Start: 23 @46935 has 88 MA's), (40, 46812), (47, 46746), (57, 46620), (67, 46557),