

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 311632 Report

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

Pham number 311632 has 58 members, 12 are drafts.

Phages represented in each track:

- Track 1 : P107A_16
- Track 2 : QueenBey_16
- Track 3 : Keiki_16, Pirate_16
- Track 4 : Procrass1_16
- Track 5 : Kubed_16
- Track 6 : Attacne_16
- Track 7 : Lauchelly_16
- Track 8 : P106I_16, P106L_16, P106C_16, P106M_16
- Track 9 : P100.1_16
- Track 10 : PHL071N05_16
- Track 11 : ATCC29399BC_16, P107C_16
- Track 12 : PA6_16
- Track 13 : Moyashi_16
- Track 14 : PHL114L00_16
- Track 15 : P100D_16
- Track 16 : P101A_16
- Track 17 : P1.1_16
- Track 18 : P108C_16
- Track 19 : Ouroboros_16
- Track 20 : PAD20_16
- Track 21 : MEAK_16
- Track 22 : Stormborn_16
- Track 23 : PHL113M01_16
- Track 24 : Supernova_16
- Track 25 : P104A_16
- Track 26 : LilBandit_16
- Track 27 : P9.1_16
- Track 28 : PAS50_16
- Track 29 : Enochoraptor_16
- Track 30 : PHL067M10_16
- Track 31 : SKKY_16
- Track 32 : Enoki_16
- Track 33 : Solid_16
- Track 34 : P100A_16
- Track 35 : Rileysaurus_16
- Track 36 : PHL037M02_16
- Track 37 : MrAK_16

- Track 38 : Leviosa_16
- Track 39 : P106A_16
- Track 40 : Aquarius_16
- Track 41 : PHL010M04_16
- Track 42 : P104B_16
- Track 43 : ATCC29399BT_16
- Track 44 : BruceLethal_16
- Track 45 : Cota_16
- Track 46 : PHL060L00_16
- Track 47 : P14.4_16
- Track 48 : PHL112N00_16
- Track 49 : P105_16
- Track 50 : Wizzo_16
- Track 51 : PHL111M01_16
- Track 52 : DrParker_16
- Track 53 : EmiRose_17

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

The start number called the most often in the published annotations is 4, it was called in 41 of the 46 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- ATCC29399BC_16, ATCC29399BT_16, Aquarius_16, Attacne_16, BruceLethal_16, Cota_16, DrParker_16, Enochoraptor_16, Enoki_16, Keiki_16, Kubed_16, Lauchelly_16, Leviosa_16, MEAK_16, Moyashi_16, MrAK_16, Ouroboros_16, P100.1_16, P100A_16, P100D_16, P101A_16, P104A_16, P104B_16, P105_16, P106A_16, P106C_16, P106I_16, P106L_16, P106M_16, P107A_16, P107C_16, P108C_16, PA6_16, PAD20_16, PAS50_16, PHL037M02_16, Pirate_16, Procrass1_16, QueenBey_16, Rileysaurus_16, SKKY_16, Solid_16, Stormborn_16, Supernova_16, Wizzo_16,

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

- LilBandit_16, P1.1_16, P14.4_16, P9.1_16, PHL010M04_16, PHL060L00_16, PHL067M10_16, PHL071N05_16, PHL112N00_16, PHL113M01_16, PHL114L00_16,

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

- EmiRose_17, PHL111M01_16,

Summary by start number:

Start 1:

- Found in 1 of 58 (1.7%) of genes in pham
- Manual Annotations of this start: 1 of 46
- Called 100.0% of time when present
- Phage (with cluster) where this start called: EmiRose_17 (singleton),

Start 2:

- Found in 43 of 58 (74.1%) of genes in pham

- Manual Annotations of this start: 4 of 46
- Called 25.6% of time when present
- Phage (with cluster) where this start called: LilBandit_16 (BU), P1.1_16 (BU), P14.4_16 (BU), P9.1_16 (BU), PHL010M04_16 (BU), PHL060L00_16 (BU), PHL067M10_16 (BU), PHL071N05_16 (BU), PHL112N00_16 (BU), PHL113M01_16 (BU), PHL114L00_16 (BU),

Start 3:

- Found in 1 of 58 (1.7%) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: PHL111M01_16 (BU),

Start 4:

- Found in 56 of 58 (96.6%) of genes in pham
- Manual Annotations of this start: 41 of 46
- Called 80.4% of time when present
- Phage (with cluster) where this start called: ATCC29399BC_16 (BU), ATCC29399BT_16 (BU), Aquarius_16 (BU), Attacne_16 (BU), BruceLethal_16 (BU), Cota_16 (BU), DrParker_16 (BU), Enochoraptor_16 (BU), Enoki_16 (BU), Keiki_16 (BU), Kubed_16 (BU), Lauchelly_16 (BU), Leviosa_16 (BU), MEAK_16 (BU), Moyashi_16 (BU), MrAK_16 (BU), Ouroboros_16 (BU), P100.1_16 (BU), P100A_16 (BU), P100D_16 (BU), P101A_16 (BU), P104A_16 (BU), P104B_16 (BU), P105_16 (BU), P106A_16 (BU), P106C_16 (BU), P106I_16 (BU), P106L_16 (BU), P106M_16 (BU), P107A_16 (BU), P107C_16 (BU), P108C_16 (BU), PA6_16 (BU), PAD20_16 (BU), PAS50_16 (BU), PHL037M02_16 (BU), Pirate_16 (BU), Procrass1_16 (BU), QueenBey_16 (BU), Rileysaurus_16 (BU), SKKY_16 (BU), Solid_16 (BU), Stormborn_16 (BU), Supernova_16 (BU), Wizzo_16 (BU),

Summary by clusters:

There are 2 clusters represented in this pham: BU, singleton,

Info for manual annotations of cluster BU:

- Start number 2 was manually annotated 4 times for cluster BU.
- Start number 4 was manually annotated 41 times for cluster BU.

Gene Information:

Gene: ATCC29399BC_16 Start: 12232, Stop: 13389, Start Num: 4

Candidate Starts for ATCC29399BC_16:

(Start: 2 @12229 has 4 MA's), (Start: 4 @12232 has 41 MA's), (5, 12259), (6, 12283), (7, 12310), (8, 12316), (9, 12322), (10, 12337), (12, 12352), (13, 12355), (14, 12358), (17, 12388), (22, 12451), (26, 12493), (28, 12526), (29, 12535), (31, 12541), (32, 12550), (33, 12568), (34, 12571), (37, 12643), (38, 12646), (40, 12679), (41, 12685), (43, 12730), (44, 12742), (45, 12757), (47, 12766), (48, 12769), (49, 12784), (50, 12796), (55, 12838), (56, 12850), (58, 12859), (60, 12874), (61, 12877), (62, 12901), (64, 12916), (65, 12943), (66, 12946), (70, 13003), (71, 13036), (72, 13072), (74, 13099), (77, 13141), (78, 13156), (79, 13159), (81, 13183), (82, 13195), (83, 13204), (84, 13210), (88, 13252), (89, 13288), (92, 13333), (94, 13345), (96, 13354), (97, 13366), (98, 13375),

Gene: ATCC29399BT_16 Start: 12235, Stop: 13392, Start Num: 4

Candidate Starts for ATCC29399BT_16:

(Start: 4 @12235 has 41 MA's), (5, 12262), (6, 12286), (9, 12325), (10, 12340), (12, 12355), (13, 12358), (14, 12361), (17, 12391), (22, 12454), (26, 12496), (28, 12529), (29, 12538), (30, 12541), (31, 12544), (32, 12553), (33, 12571), (34, 12574), (36, 12634), (37, 12646), (38, 12649), (40, 12682), (41, 12688), (44, 12745), (45, 12760), (46, 12763), (47, 12769), (48, 12772), (49, 12787), (50, 12799), (53, 12820), (54, 12838), (55, 12841), (56, 12853), (58, 12862), (61, 12880), (62, 12904), (64, 12919), (65, 12946), (70, 13006), (71, 13039), (72, 13075), (74, 13102), (77, 13144), (78, 13159), (79, 13162), (81, 13186), (82, 13198), (84, 13213), (86, 13240), (88, 13255), (89, 13291), (92, 13336), (96, 13357), (97, 13369), (98, 13378),

Gene: Aquarius_16 Start: 12255, Stop: 13412, Start Num: 4

Candidate Starts for Aquarius_16:

(Start: 2 @12252 has 4 MA's), (Start: 4 @12255 has 41 MA's), (5, 12282), (6, 12306), (7, 12333), (8, 12339), (9, 12345), (10, 12360), (12, 12375), (13, 12378), (14, 12381), (17, 12411), (22, 12474), (23, 12483), (24, 12492), (26, 12516), (28, 12549), (29, 12558), (30, 12561), (31, 12564), (32, 12573), (33, 12591), (35, 12600), (36, 12654), (37, 12666), (38, 12669), (40, 12702), (41, 12708), (43, 12753), (44, 12765), (45, 12780), (46, 12783), (47, 12789), (48, 12792), (49, 12807), (50, 12819), (54, 12858), (55, 12861), (56, 12873), (58, 12882), (60, 12897), (61, 12900), (62, 12924), (64, 12939), (65, 12966), (66, 12969), (70, 13026), (71, 13059), (72, 13095), (74, 13122), (77, 13164), (78, 13179), (79, 13182), (81, 13206), (82, 13218), (83, 13227), (84, 13233), (86, 13260), (88, 13275), (89, 13311), (91, 13353), (92, 13356), (94, 13368), (96, 13377), (97, 13389), (98, 13398),

Gene: Attacne_16 Start: 12235, Stop: 13392, Start Num: 4

Candidate Starts for Attacne_16:

(Start: 4 @12235 has 41 MA's), (5, 12262), (6, 12286), (7, 12313), (8, 12319), (9, 12325), (10, 12340), (11, 12349), (12, 12355), (13, 12358), (14, 12361), (17, 12391), (22, 12454), (24, 12472), (26, 12496), (28, 12529), (29, 12538), (30, 12541), (31, 12544), (32, 12553), (33, 12571), (36, 12634), (37, 12646), (38, 12649), (40, 12682), (41, 12688), (44, 12745), (45, 12760), (46, 12763), (47, 12769), (48, 12772), (49, 12787), (50, 12799), (55, 12841), (56, 12853), (58, 12862), (60, 12877), (61, 12880), (62, 12904), (64, 12919), (65, 12946), (67, 12952), (70, 13006), (71, 13039), (72, 13075), (74, 13102), (77, 13144), (78, 13159), (79, 13162), (81, 13186), (82, 13198), (83, 13207), (84, 13213), (86, 13240), (88, 13255), (89, 13291), (91, 13333), (92, 13336), (96, 13357), (97, 13369), (98, 13378),

Gene: BruceLethal_16 Start: 12244, Stop: 13401, Start Num: 4

Candidate Starts for BruceLethal_16:

(Start: 4 @12244 has 41 MA's), (5, 12271), (6, 12295), (8, 12328), (9, 12334), (10, 12349), (12, 12364), (13, 12367), (14, 12370), (17, 12400), (22, 12463), (23, 12472), (26, 12505), (28, 12538), (29, 12547), (30, 12550), (31, 12553), (33, 12580), (36, 12643), (37, 12655), (38, 12658), (40, 12691), (41, 12697), (43, 12742), (44, 12754), (45, 12769), (46, 12772), (47, 12778), (48, 12781), (49, 12796), (50, 12808), (53, 12829), (55, 12850), (56, 12862), (58, 12871), (60, 12886), (61, 12889), (62, 12913), (64, 12928), (65, 12955), (70, 13015), (71, 13048), (72, 13084), (74, 13111), (76, 13123), (77, 13153), (78, 13168), (79, 13171), (81, 13195), (82, 13207), (83, 13216), (84, 13222), (88, 13264), (89, 13300), (96, 13366), (97, 13378), (98, 13387),

Gene: Cota_16 Start: 12250, Stop: 13407, Start Num: 4

Candidate Starts for Cota_16:

(Start: 2 @12247 has 4 MA's), (Start: 4 @12250 has 41 MA's), (5, 12277), (6, 12301), (7, 12328), (8, 12334), (9, 12340), (10, 12355), (12, 12370), (13, 12373), (14, 12376), (17, 12406), (22, 12469), (24, 12487), (26, 12511), (28, 12544), (29, 12553), (31, 12559), (32, 12568), (33, 12586), (35, 12595), (36, 12649), (38, 12664), (41, 12703), (42, 12706), (43, 12748), (44, 12760), (45, 12775), (46, 12778), (47, 12784), (48, 12787), (49, 12802), (50, 12814), (52, 12832), (56, 12868), (58, 12877), (60, 12892), (61, 12895), (62, 12919), (64, 12934), (65, 12961), (66, 12964), (70, 13021), (71, 13054), (72, 13090), (74, 13117), (77, 13159), (78, 13174), (79, 13177), (81, 13201), (83, 13222), (84, 13228), (88, 13270), (89,

13306), (91, 13348), (96, 13372), (97, 13384), (98, 13393),

Gene: DrParker_16 Start: 12276, Stop: 13433, Start Num: 4

Candidate Starts for DrParker_16:

(Start: 2 @12273 has 4 MA's), (Start: 4 @12276 has 41 MA's), (5, 12303), (6, 12327), (7, 12354), (9, 12366), (10, 12381), (11, 12390), (12, 12396), (13, 12399), (14, 12402), (17, 12432), (22, 12495), (24, 12513), (26, 12537), (28, 12570), (29, 12579), (30, 12582), (31, 12585), (32, 12594), (33, 12612), (35, 12621), (36, 12675), (37, 12687), (38, 12690), (40, 12723), (41, 12729), (44, 12786), (45, 12801), (46, 12804), (47, 12810), (48, 12813), (49, 12828), (50, 12840), (52, 12858), (54, 12879), (58, 12903), (60, 12918), (61, 12921), (62, 12945), (64, 12960), (65, 12987), (66, 12990), (71, 13080), (72, 13116), (74, 13143), (77, 13185), (78, 13200), (79, 13203), (81, 13227), (82, 13239), (83, 13248), (84, 13254), (88, 13296), (89, 13332), (91, 13374), (92, 13377), (94, 13389), (96, 13398), (97, 13410), (98, 13419),

Gene: EmiRose_17 Start: 13953, Stop: 15197, Start Num: 1

Candidate Starts for EmiRose_17:

(Start: 1 @13953 has 1 MA's), (20, 14187), (21, 14193), (22, 14199), (25, 14220), (40, 14430), (51, 14559), (57, 14610), (59, 14631), (63, 14673), (68, 14745), (73, 14877), (85, 15033), (87, 15051), (88, 15063), (89, 15096), (90, 15108), (91, 15138), (93, 15150), (95, 15156),

Gene: Enochoraptor_16 Start: 12247, Stop: 13404, Start Num: 4

Candidate Starts for Enochoraptor_16:

(Start: 2 @12244 has 4 MA's), (Start: 4 @12247 has 41 MA's), (5, 12274), (6, 12298), (7, 12325), (9, 12337), (10, 12352), (12, 12367), (13, 12370), (17, 12403), (22, 12466), (23, 12475), (26, 12508), (28, 12541), (29, 12550), (30, 12553), (31, 12556), (32, 12565), (33, 12583), (34, 12586), (36, 12646), (37, 12658), (38, 12661), (40, 12694), (41, 12700), (43, 12745), (44, 12757), (46, 12775), (47, 12781), (48, 12784), (49, 12799), (50, 12811), (54, 12850), (56, 12865), (58, 12874), (60, 12889), (61, 12892), (62, 12916), (65, 12958), (66, 12961), (67, 12964), (70, 13018), (71, 13051), (72, 13087), (74, 13114), (75, 13117), (77, 13156), (78, 13171), (79, 13174), (81, 13198), (82, 13210), (83, 13219), (84, 13225), (86, 13252), (88, 13267), (89, 13303), (91, 13345), (92, 13348), (94, 13360), (96, 13369), (97, 13381), (98, 13390),

Gene: Enoki_16 Start: 12229, Stop: 13386, Start Num: 4

Candidate Starts for Enoki_16:

(Start: 2 @12226 has 4 MA's), (Start: 4 @12229 has 41 MA's), (5, 12256), (6, 12280), (7, 12307), (8, 12313), (9, 12319), (10, 12334), (12, 12349), (13, 12352), (14, 12355), (17, 12385), (22, 12448), (24, 12466), (26, 12490), (28, 12523), (29, 12532), (31, 12538), (32, 12547), (33, 12565), (35, 12574), (38, 12643), (40, 12676), (41, 12682), (44, 12739), (45, 12754), (46, 12757), (47, 12763), (48, 12766), (49, 12781), (50, 12793), (54, 12832), (55, 12835), (56, 12847), (58, 12856), (60, 12871), (61, 12874), (62, 12898), (64, 12913), (65, 12940), (66, 12943), (70, 13000), (71, 13033), (72, 13069), (74, 13096), (75, 13099), (77, 13138), (78, 13153), (79, 13156), (81, 13180), (82, 13192), (83, 13201), (84, 13207), (89, 13285), (91, 13327), (94, 13342), (96, 13351), (97, 13363), (98, 13372),

Gene: Keiki_16 Start: 12250, Stop: 13407, Start Num: 4

Candidate Starts for Keiki_16:

(Start: 4 @12250 has 41 MA's), (5, 12277), (6, 12301), (8, 12334), (9, 12340), (10, 12355), (12, 12370), (13, 12373), (14, 12376), (17, 12406), (22, 12469), (23, 12478), (26, 12511), (28, 12544), (29, 12553), (30, 12556), (31, 12559), (32, 12568), (33, 12586), (34, 12589), (36, 12649), (37, 12661), (38, 12664), (41, 12703), (42, 12706), (43, 12748), (44, 12760), (45, 12775), (46, 12778), (47, 12784), (48, 12787), (49, 12802), (50, 12814), (53, 12835), (55, 12856), (56, 12868), (58, 12877), (60, 12892), (61, 12895), (62, 12919), (64, 12934), (65, 12961), (70, 13021), (71, 13054), (72, 13090), (74, 13117), (77, 13159), (78, 13174), (79, 13177), (81, 13201), (82, 13213), (84, 13228), (88, 13270), (89, 13306), (91, 13348), (92, 13351), (96, 13372), (97, 13384), (98, 13393),

Gene: Kubed_16 Start: 12239, Stop: 13396, Start Num: 4

Candidate Starts for Kubed_16:

(Start: 4 @12239 has 41 MA's), (5, 12266), (6, 12290), (7, 12317), (9, 12329), (10, 12344), (12, 12359), (13, 12362), (14, 12365), (17, 12395), (19, 12422), (22, 12458), (23, 12467), (26, 12500), (28, 12533), (29, 12542), (30, 12545), (31, 12548), (32, 12557), (36, 12638), (37, 12650), (38, 12653), (40, 12686), (41, 12692), (44, 12749), (45, 12764), (46, 12767), (47, 12773), (48, 12776), (49, 12791), (54, 12842), (55, 12845), (56, 12857), (58, 12866), (60, 12881), (61, 12884), (62, 12908), (64, 12923), (65, 12950), (67, 12956), (69, 13001), (71, 13043), (72, 13079), (73, 13085), (74, 13106), (75, 13109), (77, 13148), (78, 13163), (79, 13166), (80, 13187), (81, 13190), (82, 13202), (84, 13217), (86, 13244), (88, 13259), (89, 13295), (91, 13337), (92, 13340), (96, 13361), (97, 13373), (98, 13382),

Gene: Lauchelly_16 Start: 12253, Stop: 13410, Start Num: 4

Candidate Starts for Lauchelly_16:

(Start: 2 @12250 has 4 MA's), (Start: 4 @12253 has 41 MA's), (5, 12280), (6, 12304), (8, 12337), (9, 12343), (10, 12358), (12, 12373), (13, 12376), (14, 12379), (17, 12409), (22, 12472), (23, 12481), (24, 12490), (26, 12514), (28, 12547), (29, 12556), (30, 12559), (31, 12562), (32, 12571), (33, 12589), (34, 12592), (37, 12664), (38, 12667), (40, 12700), (41, 12706), (46, 12781), (47, 12787), (48, 12790), (49, 12805), (50, 12817), (54, 12856), (55, 12859), (56, 12871), (58, 12880), (60, 12895), (61, 12898), (62, 12922), (64, 12937), (65, 12964), (70, 13024), (71, 13057), (72, 13093), (74, 13120), (75, 13123), (77, 13162), (78, 13177), (79, 13180), (81, 13204), (82, 13216), (84, 13231), (88, 13273), (89, 13309), (91, 13351), (92, 13354), (94, 13366), (96, 13375), (97, 13387), (98, 13396),

Gene: Leviosa_16 Start: 12267, Stop: 13424, Start Num: 4

Candidate Starts for Leviosa_16:

(Start: 4 @12267 has 41 MA's), (5, 12294), (6, 12318), (8, 12351), (9, 12357), (10, 12372), (12, 12387), (13, 12390), (14, 12393), (17, 12423), (22, 12486), (26, 12528), (28, 12561), (29, 12570), (30, 12573), (31, 12576), (33, 12603), (34, 12606), (37, 12678), (38, 12681), (40, 12714), (41, 12720), (43, 12765), (44, 12777), (46, 12795), (47, 12801), (48, 12804), (49, 12819), (50, 12831), (54, 12870), (55, 12873), (56, 12885), (58, 12894), (60, 12909), (61, 12912), (62, 12936), (64, 12951), (65, 12978), (66, 12981), (70, 13038), (71, 13071), (72, 13107), (74, 13134), (75, 13137), (77, 13176), (78, 13191), (79, 13194), (81, 13218), (82, 13230), (84, 13245), (86, 13272), (88, 13287), (89, 13323), (91, 13365), (92, 13368), (96, 13389), (97, 13401),

Gene: LilBandit_16 Start: 12248, Stop: 13408, Start Num: 2

Candidate Starts for LilBandit_16:

(Start: 2 @12248 has 4 MA's), (Start: 4 @12251 has 41 MA's), (5, 12278), (6, 12302), (7, 12329), (8, 12335), (9, 12341), (12, 12371), (13, 12374), (14, 12377), (17, 12407), (22, 12470), (23, 12479), (24, 12488), (26, 12512), (28, 12545), (29, 12554), (30, 12557), (31, 12560), (32, 12569), (33, 12587), (35, 12596), (36, 12650), (37, 12662), (38, 12665), (40, 12698), (41, 12704), (43, 12749), (44, 12761), (45, 12776), (46, 12779), (47, 12785), (48, 12788), (49, 12803), (50, 12815), (54, 12854), (55, 12857), (56, 12869), (58, 12878), (60, 12893), (61, 12896), (62, 12920), (64, 12935), (65, 12962), (66, 12965), (71, 13055), (72, 13091), (74, 13118), (77, 13160), (78, 13175), (79, 13178), (81, 13202), (82, 13214), (83, 13223), (84, 13229), (88, 13271), (91, 13349), (94, 13364), (96, 13373), (97, 13385), (98, 13394),

Gene: MEAK_16 Start: 12237, Stop: 13394, Start Num: 4

Candidate Starts for MEAK_16:

(Start: 2 @12234 has 4 MA's), (Start: 4 @12237 has 41 MA's), (5, 12264), (6, 12288), (7, 12315), (8, 12321), (9, 12327), (10, 12342), (12, 12357), (13, 12360), (14, 12363), (17, 12393), (22, 12456), (23, 12465), (26, 12498), (28, 12531), (29, 12540), (31, 12546), (32, 12555), (33, 12573), (34, 12576), (35, 12582), (36, 12636), (37, 12648), (38, 12651), (40, 12684), (41, 12690), (44, 12747), (45, 12762), (46, 12765), (47, 12771), (48, 12774), (49, 12789), (50, 12801), (53, 12822), (54, 12840), (55, 12843), (56, 12855), (58, 12864), (60, 12879), (61, 12882), (62, 12906), (64, 12921), (65, 12948), (66, 12951), (70, 13008), (71, 13041), (72, 13077), (74, 13104), (77, 13146), (78, 13161), (79, 13164), (81, 13188), (82,

13200), (83, 13209), (84, 13215), (88, 13257), (89, 13293), (92, 13338), (96, 13359), (98, 13380),

Gene: Moyashi_16 Start: 12273, Stop: 13430, Start Num: 4

Candidate Starts for Moyashi_16:

(Start: 2 @12270 has 4 MA's), (Start: 4 @12273 has 41 MA's), (5, 12300), (6, 12324), (7, 12351), (9, 12363), (10, 12378), (11, 12387), (12, 12393), (13, 12396), (14, 12399), (17, 12429), (22, 12492), (24, 12510), (26, 12534), (28, 12567), (29, 12576), (31, 12582), (32, 12591), (35, 12618), (38, 12687), (41, 12726), (42, 12729), (44, 12783), (45, 12798), (46, 12801), (47, 12807), (48, 12810), (49, 12825), (50, 12837), (52, 12855), (56, 12891), (58, 12900), (60, 12915), (61, 12918), (62, 12942), (64, 12957), (65, 12984), (67, 12990), (70, 13044), (71, 13077), (72, 13113), (74, 13140), (75, 13143), (77, 13182), (78, 13197), (79, 13200), (81, 13224), (82, 13236), (83, 13245), (84, 13251), (88, 13293), (89, 13329), (92, 13374), (94, 13386), (96, 13395), (97, 13407), (98, 13416), (99, 13425),

Gene: MrAK_16 Start: 12284, Stop: 13441, Start Num: 4

Candidate Starts for MrAK_16:

(Start: 2 @12281 has 4 MA's), (Start: 4 @12284 has 41 MA's), (5, 12311), (6, 12335), (7, 12362), (8, 12368), (9, 12374), (10, 12389), (11, 12398), (12, 12404), (13, 12407), (14, 12410), (17, 12440), (22, 12503), (24, 12521), (26, 12545), (28, 12578), (29, 12587), (31, 12593), (32, 12602), (35, 12629), (38, 12698), (41, 12737), (42, 12740), (44, 12794), (45, 12809), (46, 12812), (47, 12818), (48, 12821), (49, 12836), (50, 12848), (52, 12866), (56, 12902), (58, 12911), (60, 12926), (61, 12929), (62, 12953), (64, 12968), (65, 12995), (67, 13001), (70, 13055), (71, 13088), (72, 13124), (74, 13151), (75, 13154), (77, 13193), (78, 13208), (79, 13211), (81, 13235), (82, 13247), (83, 13256), (84, 13262), (88, 13304), (89, 13340), (92, 13385), (94, 13397), (96, 13406), (97, 13418), (98, 13427),

Gene: Ouroboros_16 Start: 12239, Stop: 13396, Start Num: 4

Candidate Starts for Ouroboros_16:

(Start: 4 @12239 has 41 MA's), (5, 12266), (6, 12290), (7, 12317), (8, 12323), (9, 12329), (10, 12344), (12, 12359), (13, 12362), (14, 12365), (17, 12395), (22, 12458), (23, 12467), (26, 12500), (28, 12533), (29, 12542), (30, 12545), (31, 12548), (32, 12557), (33, 12575), (34, 12578), (36, 12638), (37, 12650), (38, 12653), (40, 12686), (41, 12692), (42, 12695), (43, 12737), (44, 12749), (45, 12764), (46, 12767), (47, 12773), (48, 12776), (49, 12791), (50, 12803), (53, 12824), (55, 12845), (56, 12857), (58, 12866), (60, 12881), (61, 12884), (62, 12908), (64, 12923), (65, 12950), (70, 13010), (71, 13043), (72, 13079), (74, 13106), (77, 13148), (78, 13163), (81, 13190), (82, 13202), (84, 13217), (86, 13244), (88, 13259), (89, 13295), (91, 13337), (96, 13361), (97, 13373),

Gene: P1.1_16 Start: 12239, Stop: 13399, Start Num: 2

Candidate Starts for P1.1_16:

(Start: 2 @12239 has 4 MA's), (Start: 4 @12242 has 41 MA's), (5, 12269), (6, 12293), (7, 12320), (8, 12326), (9, 12332), (10, 12347), (12, 12362), (13, 12365), (14, 12368), (17, 12398), (22, 12461), (24, 12479), (26, 12503), (28, 12536), (29, 12545), (31, 12551), (32, 12560), (33, 12578), (35, 12587), (36, 12641), (37, 12653), (38, 12656), (40, 12689), (41, 12695), (43, 12740), (44, 12752), (45, 12767), (46, 12770), (47, 12776), (48, 12779), (49, 12794), (50, 12806), (54, 12845), (55, 12848), (56, 12860), (58, 12869), (60, 12884), (61, 12887), (62, 12911), (64, 12926), (65, 12953), (66, 12956), (70, 13013), (71, 13046), (72, 13082), (74, 13109), (75, 13112), (77, 13151), (78, 13166), (79, 13169), (81, 13193), (83, 13214), (84, 13220), (88, 13262), (89, 13298), (92, 13343), (94, 13355), (96, 13364), (98, 13385),

Gene: P100.1_16 Start: 12249, Stop: 13406, Start Num: 4

Candidate Starts for P100.1_16:

(Start: 2 @12246 has 4 MA's), (Start: 4 @12249 has 41 MA's), (5, 12276), (6, 12300), (7, 12327), (9, 12339), (10, 12354), (11, 12363), (12, 12369), (13, 12372), (14, 12375), (16, 12402), (17, 12405), (22, 12468), (24, 12486), (26, 12510), (28, 12543), (29, 12552), (30, 12555), (31, 12558), (32, 12567), (33, 12585), (35, 12594), (37, 12660), (38, 12663), (40, 12696), (41, 12702), (44, 12759), (46, 12777), (47, 12783), (48, 12786), (49, 12801), (50, 12813), (52, 12831), (54, 12852), (58, 12876), (60, 12891), (61,

12894), (62, 12918), (64, 12933), (65, 12960), (66, 12963), (70, 13020), (71, 13053), (72, 13089), (74, 13116), (77, 13158), (78, 13173), (79, 13176), (81, 13200), (82, 13212), (83, 13221), (84, 13227), (88, 13269), (89, 13305), (91, 13347), (92, 13350), (94, 13362), (96, 13371), (97, 13383), (98, 13392),

Gene: P100A_16 Start: 12249, Stop: 13406, Start Num: 4

Candidate Starts for P100A_16:

(Start: 4 @12249 has 41 MA's), (5, 12276), (6, 12300), (8, 12333), (9, 12339), (10, 12354), (12, 12369), (13, 12372), (14, 12375), (17, 12405), (18, 12429), (22, 12468), (23, 12477), (26, 12510), (28, 12543), (29, 12552), (31, 12558), (32, 12567), (33, 12585), (34, 12588), (36, 12648), (37, 12660), (38, 12663), (40, 12696), (41, 12702), (42, 12705), (43, 12747), (44, 12759), (46, 12777), (49, 12801), (50, 12813), (55, 12855), (58, 12876), (60, 12891), (61, 12894), (62, 12918), (64, 12933), (65, 12960), (70, 13020), (71, 13053), (72, 13089), (74, 13116), (75, 13119), (77, 13158), (78, 13173), (79, 13176), (81, 13200), (84, 13227), (86, 13254), (88, 13269), (89, 13305), (92, 13350), (96, 13371), (97, 13383), (98, 13392),

Gene: P100D_16 Start: 12245, Stop: 13402, Start Num: 4

Candidate Starts for P100D_16:

(Start: 2 @12242 has 4 MA's), (Start: 4 @12245 has 41 MA's), (5, 12272), (6, 12296), (7, 12323), (8, 12329), (9, 12335), (10, 12350), (12, 12365), (13, 12368), (14, 12371), (17, 12401), (22, 12464), (24, 12482), (26, 12506), (28, 12539), (29, 12548), (31, 12554), (32, 12563), (33, 12581), (35, 12590), (36, 12644), (37, 12656), (38, 12659), (40, 12692), (41, 12698), (43, 12743), (44, 12755), (46, 12773), (47, 12779), (48, 12782), (49, 12797), (50, 12809), (53, 12830), (54, 12848), (55, 12851), (56, 12863), (58, 12872), (60, 12887), (61, 12890), (62, 12914), (64, 12929), (65, 12956), (66, 12959), (70, 13016), (71, 13049), (72, 13085), (74, 13112), (77, 13154), (78, 13169), (79, 13172), (81, 13196), (82, 13208), (83, 13217), (84, 13223), (88, 13265), (89, 13301), (91, 13343), (96, 13367), (97, 13379), (98, 13388),

Gene: P101A_16 Start: 12257, Stop: 13414, Start Num: 4

Candidate Starts for P101A_16:

(Start: 2 @12254 has 4 MA's), (Start: 4 @12257 has 41 MA's), (5, 12284), (6, 12308), (7, 12335), (8, 12341), (9, 12347), (10, 12362), (12, 12377), (13, 12380), (14, 12383), (17, 12413), (22, 12476), (24, 12494), (26, 12518), (28, 12551), (29, 12560), (30, 12563), (31, 12566), (32, 12575), (33, 12593), (35, 12602), (37, 12668), (38, 12671), (40, 12704), (41, 12710), (44, 12767), (45, 12782), (46, 12785), (47, 12791), (48, 12794), (49, 12809), (50, 12821), (52, 12839), (54, 12860), (58, 12884), (60, 12899), (61, 12902), (62, 12926), (64, 12941), (65, 12968), (66, 12971), (71, 13061), (72, 13097), (74, 13124), (77, 13166), (78, 13181), (79, 13184), (81, 13208), (82, 13220), (83, 13229), (84, 13235), (88, 13277), (89, 13313), (91, 13355), (92, 13358), (94, 13370), (96, 13379), (97, 13391), (98, 13400),

Gene: P104A_16 Start: 12234, Stop: 13391, Start Num: 4

Candidate Starts for P104A_16:

(Start: 4 @12234 has 41 MA's), (5, 12261), (6, 12285), (8, 12318), (9, 12324), (10, 12339), (12, 12354), (13, 12357), (14, 12360), (17, 12390), (22, 12453), (24, 12471), (26, 12495), (28, 12528), (29, 12537), (31, 12543), (32, 12552), (33, 12570), (35, 12579), (37, 12645), (38, 12648), (40, 12681), (41, 12687), (44, 12744), (45, 12759), (46, 12762), (47, 12768), (48, 12771), (49, 12786), (50, 12798), (54, 12837), (55, 12840), (56, 12852), (58, 12861), (60, 12876), (61, 12879), (62, 12903), (64, 12918), (65, 12945), (66, 12948), (70, 13005), (71, 13038), (72, 13074), (74, 13101), (75, 13104), (77, 13143), (78, 13158), (79, 13161), (81, 13185), (84, 13212), (86, 13239), (88, 13254), (89, 13290), (91, 13332), (96, 13356), (97, 13368), (98, 13377),

Gene: P104B_16 Start: 12251, Stop: 13408, Start Num: 4

Candidate Starts for P104B_16:

(Start: 2 @12248 has 4 MA's), (Start: 4 @12251 has 41 MA's), (5, 12278), (6, 12302), (7, 12329), (8, 12335), (9, 12341), (10, 12356), (12, 12371), (13, 12374), (14, 12377), (17, 12407), (22, 12470), (23, 12479), (24, 12488), (26, 12512), (28, 12545), (29, 12554), (31, 12560), (32, 12569), (33, 12587), (35, 12596), (37, 12662), (38, 12665), (40, 12698), (41, 12704), (43, 12749), (45, 12776), (46, 12779), (47,

12785), (48, 12788), (49, 12803), (50, 12815), (54, 12854), (56, 12869), (58, 12878), (60, 12893), (61, 12896), (62, 12920), (64, 12935), (65, 12962), (66, 12965), (70, 13022), (71, 13055), (74, 13118), (77, 13160), (78, 13175), (79, 13178), (81, 13202), (82, 13214), (83, 13223), (84, 13229), (86, 13256), (88, 13271), (89, 13307), (92, 13352), (96, 13373), (97, 13385), (98, 13394),

Gene: P105_16 Start: 12154, Stop: 13311, Start Num: 4

Candidate Starts for P105_16:

(Start: 2 @12151 has 4 MA's), (Start: 4 @12154 has 41 MA's), (5, 12181), (6, 12205), (7, 12232), (8, 12238), (9, 12244), (10, 12259), (12, 12274), (13, 12277), (14, 12280), (17, 12310), (22, 12373), (24, 12391), (26, 12415), (28, 12448), (29, 12457), (31, 12463), (32, 12472), (35, 12499), (38, 12568), (41, 12607), (42, 12610), (44, 12664), (45, 12679), (46, 12682), (47, 12688), (48, 12691), (49, 12706), (50, 12718), (52, 12736), (56, 12772), (58, 12781), (60, 12796), (61, 12799), (62, 12823), (64, 12838), (65, 12865), (67, 12871), (70, 12925), (71, 12958), (72, 12994), (74, 13021), (75, 13024), (77, 13063), (78, 13078), (79, 13081), (81, 13105), (82, 13117), (83, 13126), (84, 13132), (89, 13210), (92, 13255), (94, 13267), (96, 13276), (97, 13288), (98, 13297),

Gene: P106A_16 Start: 12279, Stop: 13436, Start Num: 4

Candidate Starts for P106A_16:

(Start: 2 @12276 has 4 MA's), (Start: 4 @12279 has 41 MA's), (5, 12306), (6, 12330), (7, 12357), (9, 12369), (10, 12384), (11, 12393), (12, 12399), (13, 12402), (14, 12405), (17, 12435), (22, 12498), (24, 12516), (26, 12540), (28, 12573), (29, 12582), (30, 12585), (31, 12588), (32, 12597), (33, 12615), (35, 12624), (36, 12678), (37, 12690), (38, 12693), (40, 12726), (41, 12732), (44, 12789), (45, 12804), (46, 12807), (47, 12813), (48, 12816), (49, 12831), (50, 12843), (52, 12861), (54, 12882), (56, 12897), (58, 12906), (60, 12921), (61, 12924), (62, 12948), (64, 12963), (65, 12990), (66, 12993), (71, 13083), (72, 13119), (74, 13146), (77, 13188), (78, 13203), (79, 13206), (81, 13230), (83, 13251), (84, 13257), (86, 13284), (88, 13299), (89, 13335), (92, 13380), (96, 13401), (97, 13413), (98, 13422),

Gene: P106C_16 Start: 12279, Stop: 13436, Start Num: 4

Candidate Starts for P106C_16:

(Start: 2 @12276 has 4 MA's), (Start: 4 @12279 has 41 MA's), (5, 12306), (6, 12330), (7, 12357), (9, 12369), (10, 12384), (11, 12393), (12, 12399), (13, 12402), (14, 12405), (17, 12435), (22, 12498), (24, 12516), (26, 12540), (28, 12573), (29, 12582), (30, 12585), (31, 12588), (32, 12597), (33, 12615), (35, 12624), (36, 12678), (37, 12690), (38, 12693), (40, 12726), (41, 12732), (44, 12789), (45, 12804), (46, 12807), (47, 12813), (48, 12816), (49, 12831), (50, 12843), (52, 12861), (54, 12882), (56, 12897), (58, 12906), (60, 12921), (61, 12924), (62, 12948), (64, 12963), (65, 12990), (66, 12993), (71, 13083), (72, 13119), (74, 13146), (77, 13188), (78, 13203), (79, 13206), (81, 13230), (83, 13251), (84, 13257), (86, 13284), (88, 13299), (89, 13335), (92, 13380), (94, 13392), (96, 13401), (97, 13413), (98, 13422),

Gene: P106I_16 Start: 12279, Stop: 13436, Start Num: 4

Candidate Starts for P106I_16:

(Start: 2 @12276 has 4 MA's), (Start: 4 @12279 has 41 MA's), (5, 12306), (6, 12330), (7, 12357), (9, 12369), (10, 12384), (11, 12393), (12, 12399), (13, 12402), (14, 12405), (17, 12435), (22, 12498), (24, 12516), (26, 12540), (28, 12573), (29, 12582), (30, 12585), (31, 12588), (32, 12597), (33, 12615), (35, 12624), (36, 12678), (37, 12690), (38, 12693), (40, 12726), (41, 12732), (44, 12789), (45, 12804), (46, 12807), (47, 12813), (48, 12816), (49, 12831), (50, 12843), (52, 12861), (54, 12882), (56, 12897), (58, 12906), (60, 12921), (61, 12924), (62, 12948), (64, 12963), (65, 12990), (66, 12993), (71, 13083), (72, 13119), (74, 13146), (77, 13188), (78, 13203), (79, 13206), (81, 13230), (83, 13251), (84, 13257), (86, 13284), (88, 13299), (89, 13335), (92, 13380), (94, 13392), (96, 13401), (97, 13413), (98, 13422),

Gene: P106L_16 Start: 12279, Stop: 13436, Start Num: 4

Candidate Starts for P106L_16:

(Start: 2 @12276 has 4 MA's), (Start: 4 @12279 has 41 MA's), (5, 12306), (6, 12330), (7, 12357), (9, 12369), (10, 12384), (11, 12393), (12, 12399), (13, 12402), (14, 12405), (17, 12435), (22, 12498), (24,

12516), (26, 12540), (28, 12573), (29, 12582), (30, 12585), (31, 12588), (32, 12597), (33, 12615), (35, 12624), (36, 12678), (37, 12690), (38, 12693), (40, 12726), (41, 12732), (44, 12789), (45, 12804), (46, 12807), (47, 12813), (48, 12816), (49, 12831), (50, 12843), (52, 12861), (54, 12882), (56, 12897), (58, 12906), (60, 12921), (61, 12924), (62, 12948), (64, 12963), (65, 12990), (66, 12993), (71, 13083), (72, 13119), (74, 13146), (77, 13188), (78, 13203), (79, 13206), (81, 13230), (83, 13251), (84, 13257), (86, 13284), (88, 13299), (89, 13335), (92, 13380), (94, 13392), (96, 13401), (97, 13413), (98, 13422),

Gene: P106M_16 Start: 12279, Stop: 13436, Start Num: 4

Candidate Starts for P106M_16:

(Start: 2 @12276 has 4 MA's), (Start: 4 @12279 has 41 MA's), (5, 12306), (6, 12330), (7, 12357), (9, 12369), (10, 12384), (11, 12393), (12, 12399), (13, 12402), (14, 12405), (17, 12435), (22, 12498), (24, 12516), (26, 12540), (28, 12573), (29, 12582), (30, 12585), (31, 12588), (32, 12597), (33, 12615), (35, 12624), (36, 12678), (37, 12690), (38, 12693), (40, 12726), (41, 12732), (44, 12789), (45, 12804), (46, 12807), (47, 12813), (48, 12816), (49, 12831), (50, 12843), (52, 12861), (54, 12882), (56, 12897), (58, 12906), (60, 12921), (61, 12924), (62, 12948), (64, 12963), (65, 12990), (66, 12993), (71, 13083), (72, 13119), (74, 13146), (77, 13188), (78, 13203), (79, 13206), (81, 13230), (83, 13251), (84, 13257), (86, 13284), (88, 13299), (89, 13335), (92, 13380), (94, 13392), (96, 13401), (97, 13413), (98, 13422),

Gene: P107A_16 Start: 12255, Stop: 13412, Start Num: 4

Candidate Starts for P107A_16:

(Start: 4 @12255 has 41 MA's), (5, 12282), (6, 12306), (7, 12333), (8, 12339), (9, 12345), (10, 12360), (12, 12375), (13, 12378), (14, 12381), (17, 12411), (22, 12474), (23, 12483), (24, 12492), (26, 12516), (28, 12549), (29, 12558), (30, 12561), (31, 12564), (32, 12573), (33, 12591), (34, 12594), (37, 12666), (38, 12669), (40, 12702), (41, 12708), (44, 12765), (46, 12783), (47, 12789), (48, 12792), (49, 12807), (50, 12819), (53, 12840), (55, 12861), (56, 12873), (58, 12882), (60, 12897), (61, 12900), (62, 12924), (64, 12939), (65, 12966), (66, 12969), (70, 13026), (71, 13059), (72, 13095), (74, 13122), (75, 13125), (77, 13164), (78, 13179), (79, 13182), (81, 13206), (82, 13218), (84, 13233), (86, 13260), (88, 13275), (89, 13311), (92, 13356), (96, 13377), (97, 13389), (98, 13398),

Gene: P107C_16 Start: 12232, Stop: 13389, Start Num: 4

Candidate Starts for P107C_16:

(Start: 2 @12229 has 4 MA's), (Start: 4 @12232 has 41 MA's), (5, 12259), (6, 12283), (7, 12310), (8, 12316), (9, 12322), (10, 12337), (12, 12352), (13, 12355), (14, 12358), (17, 12388), (22, 12451), (26, 12493), (28, 12526), (29, 12535), (31, 12541), (32, 12550), (33, 12568), (34, 12571), (37, 12643), (38, 12646), (40, 12679), (41, 12685), (43, 12730), (44, 12742), (45, 12757), (47, 12766), (48, 12769), (49, 12784), (50, 12796), (55, 12838), (56, 12850), (58, 12859), (60, 12874), (61, 12877), (62, 12901), (64, 12916), (65, 12943), (66, 12946), (70, 13003), (71, 13036), (72, 13072), (74, 13099), (77, 13141), (78, 13156), (79, 13159), (81, 13183), (82, 13195), (83, 13204), (84, 13210), (88, 13252), (89, 13288), (92, 13333), (94, 13345), (96, 13354), (97, 13366), (98, 13375),

Gene: P108C_16 Start: 12240, Stop: 13397, Start Num: 4

Candidate Starts for P108C_16:

(Start: 2 @12237 has 4 MA's), (Start: 4 @12240 has 41 MA's), (5, 12267), (6, 12291), (8, 12324), (9, 12330), (10, 12345), (12, 12360), (13, 12363), (14, 12366), (17, 12396), (22, 12459), (24, 12477), (26, 12501), (28, 12534), (29, 12543), (30, 12546), (31, 12549), (32, 12558), (33, 12576), (35, 12585), (36, 12639), (37, 12651), (38, 12654), (40, 12687), (41, 12693), (44, 12750), (45, 12765), (46, 12768), (47, 12774), (49, 12792), (50, 12804), (52, 12822), (54, 12843), (56, 12858), (58, 12867), (60, 12882), (61, 12885), (62, 12909), (64, 12924), (65, 12951), (66, 12954), (71, 13044), (72, 13080), (74, 13107), (77, 13149), (78, 13164), (79, 13167), (81, 13191), (82, 13203), (84, 13218), (88, 13260), (89, 13296), (91, 13338), (92, 13341), (94, 13353), (96, 13362), (97, 13374), (98, 13383),

Gene: P14.4_16 Start: 12243, Stop: 13403, Start Num: 2

Candidate Starts for P14.4_16:

(Start: 2 @12243 has 4 MA's), (Start: 4 @12246 has 41 MA's), (5, 12273), (6, 12297), (7, 12324), (8, 12330), (9, 12336), (10, 12351), (12, 12366), (13, 12369), (14, 12372), (17, 12402), (22, 12465), (24, 12483), (26, 12507), (28, 12540), (29, 12549), (30, 12552), (31, 12555), (32, 12564), (33, 12582), (35, 12591), (36, 12645), (37, 12657), (38, 12660), (40, 12693), (41, 12699), (43, 12744), (44, 12756), (45, 12771), (46, 12774), (47, 12780), (48, 12783), (49, 12798), (50, 12810), (54, 12849), (55, 12852), (56, 12864), (58, 12873), (60, 12888), (61, 12891), (62, 12915), (64, 12930), (65, 12957), (66, 12960), (70, 13017), (72, 13086), (74, 13113), (75, 13116), (77, 13155), (78, 13170), (79, 13173), (81, 13197), (83, 13218), (84, 13224), (88, 13266), (89, 13302), (91, 13344), (94, 13359), (96, 13368), (97, 13380), (98, 13389),

Gene: P9.1_16 Start: 12238, Stop: 13398, Start Num: 2

Candidate Starts for P9.1_16:

(Start: 2 @12238 has 4 MA's), (Start: 4 @12241 has 41 MA's), (5, 12268), (6, 12292), (7, 12319), (9, 12331), (10, 12346), (11, 12355), (12, 12361), (13, 12364), (14, 12367), (17, 12397), (22, 12460), (24, 12478), (26, 12502), (28, 12535), (29, 12544), (31, 12550), (32, 12559), (33, 12577), (35, 12586), (37, 12652), (38, 12655), (39, 12658), (40, 12688), (41, 12694), (43, 12739), (44, 12751), (45, 12766), (46, 12769), (47, 12775), (48, 12778), (49, 12793), (50, 12805), (54, 12844), (56, 12859), (58, 12868), (60, 12883), (61, 12886), (62, 12910), (64, 12925), (65, 12952), (66, 12955), (71, 13045), (72, 13081), (74, 13108), (75, 13111), (77, 13150), (78, 13165), (79, 13168), (81, 13192), (84, 13219), (88, 13261), (89, 13297), (91, 13339), (94, 13354), (96, 13363), (97, 13375), (98, 13384),

Gene: PA6_16 Start: 12270, Stop: 13427, Start Num: 4

Candidate Starts for PA6_16:

(Start: 2 @12267 has 4 MA's), (Start: 4 @12270 has 41 MA's), (5, 12297), (6, 12321), (7, 12348), (8, 12354), (9, 12360), (10, 12375), (11, 12384), (12, 12390), (13, 12393), (14, 12396), (17, 12426), (22, 12489), (23, 12498), (24, 12507), (26, 12531), (28, 12564), (29, 12573), (30, 12576), (31, 12579), (32, 12588), (33, 12606), (35, 12615), (37, 12681), (38, 12684), (40, 12717), (41, 12723), (43, 12768), (44, 12780), (45, 12795), (46, 12798), (47, 12804), (48, 12807), (49, 12822), (50, 12834), (54, 12873), (55, 12876), (56, 12888), (58, 12897), (60, 12912), (61, 12915), (62, 12939), (64, 12954), (65, 12981), (66, 12984), (70, 13041), (71, 13074), (72, 13110), (74, 13137), (75, 13140), (77, 13179), (78, 13194), (79, 13197), (81, 13221), (83, 13242), (84, 13248), (86, 13275), (88, 13290), (89, 13326), (92, 13371), (94, 13383), (96, 13392), (97, 13404), (98, 13413),

Gene: PAD20_16 Start: 12238, Stop: 13395, Start Num: 4

Candidate Starts for PAD20_16:

(Start: 2 @12235 has 4 MA's), (Start: 4 @12238 has 41 MA's), (5, 12265), (6, 12289), (7, 12316), (8, 12322), (9, 12328), (10, 12343), (12, 12358), (13, 12361), (14, 12364), (17, 12394), (22, 12457), (24, 12475), (26, 12499), (28, 12532), (29, 12541), (30, 12544), (31, 12547), (32, 12556), (33, 12574), (35, 12583), (37, 12649), (40, 12685), (41, 12691), (43, 12736), (44, 12748), (45, 12763), (46, 12766), (47, 12772), (48, 12775), (49, 12790), (50, 12802), (54, 12841), (56, 12856), (58, 12865), (60, 12880), (61, 12883), (62, 12907), (64, 12922), (65, 12949), (66, 12952), (70, 13009), (71, 13042), (72, 13078), (74, 13105), (77, 13147), (78, 13162), (79, 13165), (81, 13189), (82, 13201), (83, 13210), (84, 13216), (88, 13258), (89, 13294), (92, 13339), (94, 13351), (96, 13360), (97, 13372), (98, 13381),

Gene: PAS50_16 Start: 12247, Stop: 13404, Start Num: 4

Candidate Starts for PAS50_16:

(Start: 2 @12244 has 4 MA's), (Start: 4 @12247 has 41 MA's), (5, 12274), (6, 12298), (7, 12325), (8, 12331), (9, 12337), (10, 12352), (12, 12367), (13, 12370), (14, 12373), (17, 12403), (22, 12466), (24, 12484), (26, 12508), (28, 12541), (29, 12550), (30, 12553), (31, 12556), (32, 12565), (33, 12583), (35, 12592), (37, 12658), (38, 12661), (41, 12700), (44, 12757), (45, 12772), (46, 12775), (47, 12781), (48, 12784), (49, 12799), (50, 12811), (52, 12829), (54, 12850), (58, 12874), (60, 12889), (61, 12892), (62, 12916), (64, 12931), (65, 12958), (66, 12961), (71, 13051), (72, 13087), (74, 13114), (77, 13156), (78, 13171), (79, 13174), (81, 13198), (82, 13210), (83, 13219), (84, 13225), (88, 13267), (89, 13303), (91,

13345), (92, 13348), (96, 13369), (97, 13381), (98, 13390),

Gene: PHL010M04_16 Start: 12238, Stop: 13398, Start Num: 2

Candidate Starts for PHL010M04_16:

(Start: 2 @12238 has 4 MA's), (Start: 4 @12241 has 41 MA's), (5, 12268), (6, 12292), (8, 12325), (9, 12331), (10, 12346), (12, 12361), (13, 12364), (14, 12367), (17, 12397), (22, 12460), (23, 12469), (24, 12478), (26, 12502), (28, 12535), (29, 12544), (30, 12547), (31, 12550), (32, 12559), (33, 12577), (34, 12580), (37, 12652), (38, 12655), (41, 12694), (43, 12739), (44, 12751), (45, 12766), (46, 12769), (47, 12775), (48, 12778), (49, 12793), (50, 12805), (53, 12826), (55, 12847), (56, 12859), (58, 12868), (60, 12883), (61, 12886), (62, 12910), (64, 12925), (65, 12952), (70, 13012), (71, 13045), (72, 13081), (74, 13108), (75, 13111), (77, 13150), (78, 13165), (79, 13168), (81, 13192), (82, 13204), (83, 13213), (84, 13219), (88, 13261), (89, 13297), (92, 13342), (94, 13354), (96, 13363), (97, 13375), (98, 13384),

Gene: PHL037M02_16 Start: 12249, Stop: 13406, Start Num: 4

Candidate Starts for PHL037M02_16:

(Start: 4 @12249 has 41 MA's), (5, 12276), (6, 12300), (8, 12333), (9, 12339), (10, 12354), (12, 12369), (13, 12372), (14, 12375), (17, 12405), (22, 12468), (23, 12477), (26, 12510), (28, 12543), (29, 12552), (30, 12555), (31, 12558), (33, 12585), (34, 12588), (37, 12660), (38, 12663), (40, 12696), (41, 12702), (43, 12747), (44, 12759), (45, 12774), (46, 12777), (49, 12801), (50, 12813), (55, 12855), (58, 12876), (60, 12891), (61, 12894), (62, 12918), (64, 12933), (65, 12960), (70, 13020), (71, 13053), (72, 13089), (74, 13116), (75, 13119), (77, 13158), (78, 13173), (79, 13176), (81, 13200), (82, 13212), (83, 13221), (84, 13227), (88, 13269), (89, 13305), (91, 13347), (92, 13350), (94, 13362), (96, 13371), (97, 13383), (98, 13392),

Gene: PHL060L00_16 Start: 12254, Stop: 13414, Start Num: 2

Candidate Starts for PHL060L00_16:

(Start: 2 @12254 has 4 MA's), (Start: 4 @12257 has 41 MA's), (5, 12284), (6, 12308), (7, 12335), (8, 12341), (9, 12347), (10, 12362), (11, 12371), (12, 12377), (13, 12380), (14, 12383), (16, 12410), (17, 12413), (22, 12476), (24, 12494), (26, 12518), (28, 12551), (29, 12560), (30, 12563), (31, 12566), (32, 12575), (33, 12593), (35, 12602), (37, 12668), (38, 12671), (40, 12704), (41, 12710), (43, 12755), (44, 12767), (46, 12785), (47, 12791), (48, 12794), (49, 12809), (50, 12821), (54, 12860), (55, 12863), (56, 12875), (58, 12884), (60, 12899), (61, 12902), (62, 12926), (64, 12941), (65, 12968), (66, 12971), (70, 13028), (71, 13061), (72, 13097), (74, 13124), (75, 13127), (76, 13136), (77, 13166), (78, 13181), (79, 13184), (81, 13208), (82, 13220), (83, 13229), (88, 13277), (89, 13313), (91, 13355), (92, 13358), (94, 13370), (96, 13379), (97, 13391), (98, 13400),

Gene: PHL067M10_16 Start: 12215, Stop: 13375, Start Num: 2

Candidate Starts for PHL067M10_16:

(Start: 2 @12215 has 4 MA's), (Start: 4 @12218 has 41 MA's), (5, 12245), (6, 12269), (7, 12296), (9, 12308), (10, 12323), (12, 12338), (13, 12341), (14, 12344), (17, 12374), (22, 12437), (24, 12455), (26, 12479), (28, 12512), (29, 12521), (30, 12524), (31, 12527), (32, 12536), (33, 12554), (34, 12557), (35, 12563), (37, 12629), (38, 12632), (40, 12665), (41, 12671), (44, 12728), (45, 12743), (46, 12746), (47, 12752), (48, 12755), (49, 12770), (50, 12782), (54, 12821), (56, 12836), (58, 12845), (60, 12860), (61, 12863), (62, 12887), (64, 12902), (65, 12929), (66, 12932), (71, 13022), (72, 13058), (74, 13085), (75, 13088), (77, 13127), (78, 13142), (79, 13145), (81, 13169), (82, 13181), (83, 13190), (84, 13196), (88, 13238), (89, 13274), (91, 13316), (92, 13319), (94, 13331), (96, 13340), (97, 13352), (98, 13361),

Gene: PHL071N05_16 Start: 12243, Stop: 13403, Start Num: 2

Candidate Starts for PHL071N05_16:

(Start: 2 @12243 has 4 MA's), (Start: 4 @12246 has 41 MA's), (5, 12273), (6, 12297), (7, 12324), (8, 12330), (9, 12336), (10, 12351), (12, 12366), (13, 12369), (14, 12372), (17, 12402), (22, 12465), (24, 12483), (26, 12507), (28, 12540), (29, 12549), (30, 12552), (31, 12555), (32, 12564), (33, 12582), (34, 12585), (36, 12645), (37, 12657), (38, 12660), (40, 12693), (41, 12699), (43, 12744), (44, 12756), (46,

12774), (47, 12780), (48, 12783), (49, 12798), (50, 12810), (52, 12828), (53, 12831), (54, 12849), (55, 12852), (56, 12864), (58, 12873), (60, 12888), (61, 12891), (62, 12915), (64, 12930), (65, 12957), (66, 12960), (70, 13017), (71, 13050), (72, 13086), (74, 13113), (75, 13116), (77, 13155), (78, 13170), (79, 13173), (81, 13197), (82, 13209), (83, 13218), (84, 13224), (88, 13266), (89, 13302), (91, 13344), (92, 13347), (94, 13359), (96, 13368), (97, 13380), (98, 13389),

Gene: PHL111M01_16 Start: 12241, Stop: 13398, Start Num: 3

Candidate Starts for PHL111M01_16:

(3, 12241), (5, 12268), (6, 12292), (7, 12319), (8, 12325), (9, 12331), (10, 12346), (11, 12355), (12, 12361), (13, 12364), (14, 12367), (17, 12397), (22, 12460), (24, 12478), (26, 12502), (28, 12535), (29, 12544), (30, 12547), (31, 12550), (32, 12559), (33, 12577), (35, 12586), (37, 12652), (38, 12655), (40, 12688), (41, 12694), (43, 12739), (44, 12751), (45, 12766), (46, 12769), (47, 12775), (48, 12778), (49, 12793), (50, 12805), (52, 12823), (54, 12844), (56, 12859), (58, 12868), (60, 12883), (61, 12886), (62, 12910), (64, 12925), (65, 12952), (67, 12958), (70, 13012), (71, 13045), (72, 13081), (74, 13108), (75, 13111), (77, 13150), (78, 13165), (79, 13168), (81, 13192), (82, 13204), (83, 13213), (84, 13219), (86, 13246), (88, 13261), (89, 13297), (92, 13342), (94, 13354), (96, 13363), (97, 13375), (98, 13384),

Gene: PHL112N00_16 Start: 12236, Stop: 13396, Start Num: 2

Candidate Starts for PHL112N00_16:

(Start: 2 @12236 has 4 MA's), (Start: 4 @12239 has 41 MA's), (5, 12266), (6, 12290), (7, 12317), (8, 12323), (9, 12329), (10, 12344), (12, 12359), (13, 12362), (14, 12365), (15, 12386), (17, 12395), (22, 12458), (24, 12476), (26, 12500), (28, 12533), (29, 12542), (30, 12545), (31, 12548), (32, 12557), (33, 12575), (34, 12578), (35, 12584), (36, 12638), (37, 12650), (38, 12653), (40, 12686), (41, 12692), (43, 12737), (44, 12749), (45, 12764), (46, 12767), (47, 12773), (48, 12776), (49, 12791), (50, 12803), (53, 12824), (54, 12842), (55, 12845), (56, 12857), (58, 12866), (60, 12881), (61, 12884), (62, 12908), (64, 12923), (65, 12950), (66, 12953), (70, 13010), (71, 13043), (72, 13079), (74, 13106), (77, 13148), (78, 13163), (79, 13166), (81, 13190), (82, 13202), (83, 13211), (84, 13217), (86, 13244), (88, 13259), (89, 13295), (92, 13340), (94, 13352), (96, 13361), (97, 13373), (98, 13382),

Gene: PHL113M01_16 Start: 12257, Stop: 13417, Start Num: 2

Candidate Starts for PHL113M01_16:

(Start: 2 @12257 has 4 MA's), (Start: 4 @12260 has 41 MA's), (5, 12287), (6, 12311), (7, 12338), (8, 12344), (9, 12350), (10, 12365), (12, 12380), (13, 12383), (14, 12386), (17, 12416), (22, 12479), (23, 12488), (24, 12497), (26, 12521), (28, 12554), (29, 12563), (31, 12569), (32, 12578), (33, 12596), (35, 12605), (37, 12671), (38, 12674), (40, 12707), (41, 12713), (43, 12758), (44, 12770), (45, 12785), (46, 12788), (47, 12794), (48, 12797), (49, 12812), (50, 12824), (54, 12863), (56, 12878), (58, 12887), (60, 12902), (61, 12905), (62, 12929), (64, 12944), (65, 12971), (66, 12974), (70, 13031), (71, 13064), (72, 13100), (74, 13127), (77, 13169), (78, 13184), (79, 13187), (81, 13211), (82, 13223), (83, 13232), (84, 13238), (88, 13280), (89, 13316), (92, 13361), (94, 13373), (96, 13382), (97, 13394), (98, 13403),

Gene: PHL114L00_16 Start: 12241, Stop: 13401, Start Num: 2

Candidate Starts for PHL114L00_16:

(Start: 2 @12241 has 4 MA's), (Start: 4 @12244 has 41 MA's), (5, 12271), (6, 12295), (7, 12322), (8, 12328), (9, 12334), (10, 12349), (13, 12367), (17, 12400), (22, 12463), (23, 12472), (26, 12505), (28, 12538), (29, 12547), (31, 12553), (32, 12562), (34, 12583), (37, 12655), (38, 12658), (40, 12691), (41, 12697), (42, 12700), (43, 12742), (44, 12754), (45, 12769), (46, 12772), (47, 12778), (48, 12781), (49, 12796), (50, 12808), (55, 12850), (56, 12862), (60, 12886), (61, 12889), (62, 12913), (64, 12928), (65, 12955), (67, 12961), (70, 13015), (71, 13048), (72, 13084), (74, 13111), (75, 13114), (77, 13153), (78, 13168), (79, 13171), (81, 13195), (83, 13216), (84, 13222), (88, 13264), (89, 13300), (91, 13342), (96, 13366), (97, 13378), (98, 13387),

Gene: Pirate_16 Start: 12235, Stop: 13392, Start Num: 4

Candidate Starts for Pirate_16:

(Start: 4 @12235 has 41 MA's), (5, 12262), (6, 12286), (8, 12319), (9, 12325), (10, 12340), (12, 12355), (13, 12358), (14, 12361), (17, 12391), (22, 12454), (23, 12463), (26, 12496), (28, 12529), (29, 12538), (30, 12541), (31, 12544), (32, 12553), (33, 12571), (34, 12574), (36, 12634), (37, 12646), (38, 12649), (41, 12688), (42, 12691), (43, 12733), (44, 12745), (45, 12760), (46, 12763), (47, 12769), (48, 12772), (49, 12787), (50, 12799), (53, 12820), (55, 12841), (56, 12853), (58, 12862), (60, 12877), (61, 12880), (62, 12904), (64, 12919), (65, 12946), (70, 13006), (71, 13039), (72, 13075), (74, 13102), (77, 13144), (78, 13159), (79, 13162), (81, 13186), (82, 13198), (84, 13213), (88, 13255), (89, 13291), (91, 13333), (92, 13336), (96, 13357), (97, 13369), (98, 13378),

Gene: Procrass1_16 Start: 12243, Stop: 13400, Start Num: 4

Candidate Starts for Procrass1_16:

(Start: 2 @12240 has 4 MA's), (Start: 4 @12243 has 41 MA's), (5, 12270), (6, 12294), (7, 12321), (8, 12327), (9, 12333), (10, 12348), (11, 12357), (12, 12363), (13, 12366), (14, 12369), (17, 12399), (22, 12462), (23, 12471), (26, 12504), (28, 12537), (29, 12546), (31, 12552), (32, 12561), (33, 12579), (34, 12582), (35, 12588), (36, 12642), (37, 12654), (38, 12657), (40, 12690), (41, 12696), (44, 12753), (45, 12768), (46, 12771), (47, 12777), (48, 12780), (49, 12795), (50, 12807), (54, 12846), (56, 12861), (58, 12870), (60, 12885), (61, 12888), (62, 12912), (64, 12927), (65, 12954), (66, 12957), (70, 13014), (71, 13047), (72, 13083), (74, 13110), (75, 13113), (76, 13122), (77, 13152), (78, 13167), (79, 13170), (81, 13194), (83, 13215), (84, 13221), (88, 13263), (89, 13299), (91, 13341), (94, 13356), (96, 13365), (97, 13377), (98, 13386),

Gene: QueenBey_16 Start: 12243, Stop: 13400, Start Num: 4

Candidate Starts for QueenBey_16:

(Start: 2 @12240 has 4 MA's), (Start: 4 @12243 has 41 MA's), (5, 12270), (6, 12294), (8, 12327), (9, 12333), (10, 12348), (12, 12363), (13, 12366), (14, 12369), (17, 12399), (22, 12462), (23, 12471), (24, 12480), (26, 12504), (28, 12537), (29, 12546), (30, 12549), (31, 12552), (32, 12561), (33, 12579), (34, 12582), (36, 12642), (37, 12654), (38, 12657), (41, 12696), (42, 12699), (43, 12741), (44, 12753), (46, 12771), (47, 12777), (48, 12780), (49, 12795), (50, 12807), (53, 12828), (55, 12849), (56, 12861), (58, 12870), (60, 12885), (61, 12888), (62, 12912), (64, 12927), (65, 12954), (70, 13014), (71, 13047), (72, 13083), (74, 13110), (75, 13113), (77, 13152), (78, 13167), (79, 13170), (81, 13194), (83, 13215), (84, 13221), (88, 13263), (89, 13299), (91, 13341), (92, 13344), (94, 13356), (96, 13365), (97, 13377), (98, 13386),

Gene: Rileysaurus_16 Start: 12238, Stop: 13395, Start Num: 4

Candidate Starts for Rileysaurus_16:

(Start: 4 @12238 has 41 MA's), (5, 12265), (6, 12289), (8, 12322), (9, 12328), (10, 12343), (12, 12358), (13, 12361), (14, 12364), (17, 12394), (22, 12457), (23, 12466), (26, 12499), (28, 12532), (29, 12541), (30, 12544), (31, 12547), (32, 12556), (33, 12574), (34, 12577), (36, 12637), (37, 12649), (38, 12652), (40, 12685), (41, 12691), (42, 12694), (43, 12736), (44, 12748), (46, 12766), (47, 12772), (48, 12775), (49, 12790), (50, 12802), (54, 12841), (55, 12844), (56, 12856), (58, 12865), (60, 12880), (61, 12883), (62, 12907), (64, 12922), (65, 12949), (70, 13009), (71, 13042), (72, 13078), (74, 13105), (75, 13108), (77, 13147), (78, 13162), (79, 13165), (81, 13189), (82, 13201), (84, 13216), (86, 13243), (88, 13258), (89, 13294), (92, 13339), (96, 13360), (97, 13372), (98, 13381),

Gene: SKKY_16 Start: 12278, Stop: 13435, Start Num: 4

Candidate Starts for SKKY_16:

(Start: 2 @12275 has 4 MA's), (Start: 4 @12278 has 41 MA's), (5, 12305), (6, 12329), (7, 12356), (9, 12368), (10, 12383), (11, 12392), (12, 12398), (13, 12401), (14, 12404), (17, 12434), (22, 12497), (24, 12515), (26, 12539), (28, 12572), (29, 12581), (31, 12587), (32, 12596), (35, 12623), (38, 12692), (41, 12731), (42, 12734), (44, 12788), (45, 12803), (46, 12806), (47, 12812), (48, 12815), (49, 12830), (50, 12842), (52, 12860), (56, 12896), (58, 12905), (60, 12920), (61, 12923), (62, 12947), (64, 12962), (65, 12989), (67, 12995), (70, 13049), (71, 13082), (72, 13118), (74, 13145), (75, 13148), (77, 13187), (78, 13202), (79, 13205), (81, 13229), (83, 13250), (84, 13256), (88, 13298), (89, 13334), (92, 13379), (94,

13391), (96, 13400), (97, 13412), (98, 13421),

Gene: Solid_16 Start: 12232, Stop: 13389, Start Num: 4

Candidate Starts for Solid_16:

(Start: 2 @12229 has 4 MA's), (Start: 4 @12232 has 41 MA's), (5, 12259), (6, 12283), (7, 12310), (8, 12316), (9, 12322), (10, 12337), (12, 12352), (13, 12355), (14, 12358), (17, 12388), (22, 12451), (26, 12493), (28, 12526), (29, 12535), (30, 12538), (31, 12541), (32, 12550), (33, 12568), (35, 12577), (36, 12631), (37, 12643), (38, 12646), (40, 12679), (41, 12685), (43, 12730), (44, 12742), (45, 12757), (46, 12760), (47, 12766), (48, 12769), (49, 12784), (50, 12796), (54, 12835), (55, 12838), (56, 12850), (58, 12859), (60, 12874), (61, 12877), (62, 12901), (64, 12916), (65, 12943), (66, 12946), (70, 13003), (71, 13036), (72, 13072), (74, 13099), (78, 13156), (79, 13159), (81, 13183), (83, 13204), (84, 13210), (86, 13237), (88, 13252), (89, 13288), (92, 13333), (94, 13345), (96, 13354), (97, 13366), (98, 13375),

Gene: Stormborn_16 Start: 12254, Stop: 13411, Start Num: 4

Candidate Starts for Stormborn_16:

(Start: 2 @12251 has 4 MA's), (Start: 4 @12254 has 41 MA's), (5, 12281), (6, 12305), (7, 12332), (8, 12338), (9, 12344), (10, 12359), (12, 12374), (13, 12377), (14, 12380), (17, 12410), (22, 12473), (23, 12482), (26, 12515), (28, 12548), (29, 12557), (30, 12560), (31, 12563), (32, 12572), (33, 12590), (37, 12665), (38, 12668), (40, 12701), (41, 12707), (43, 12752), (44, 12764), (45, 12779), (46, 12782), (49, 12806), (50, 12818), (55, 12860), (58, 12881), (60, 12896), (61, 12899), (62, 12923), (64, 12938), (65, 12965), (70, 13025), (71, 13058), (72, 13094), (74, 13121), (75, 13124), (77, 13163), (78, 13178), (79, 13181), (81, 13205), (82, 13217), (83, 13226), (84, 13232), (88, 13274), (89, 13310), (91, 13352), (96, 13376), (97, 13388), (98, 13397),

Gene: Supernova_16 Start: 12250, Stop: 13407, Start Num: 4

Candidate Starts for Supernova_16:

(Start: 2 @12247 has 4 MA's), (Start: 4 @12250 has 41 MA's), (5, 12277), (6, 12301), (7, 12328), (8, 12334), (9, 12340), (10, 12355), (11, 12364), (12, 12370), (13, 12373), (14, 12376), (17, 12406), (22, 12469), (26, 12511), (28, 12544), (29, 12553), (31, 12559), (32, 12568), (35, 12595), (38, 12664), (41, 12703), (42, 12706), (44, 12760), (45, 12775), (46, 12778), (47, 12784), (48, 12787), (49, 12802), (50, 12814), (52, 12832), (56, 12868), (58, 12877), (60, 12892), (61, 12895), (62, 12919), (64, 12934), (65, 12961), (67, 12967), (70, 13021), (71, 13054), (72, 13090), (74, 13117), (75, 13120), (77, 13159), (78, 13174), (81, 13201), (82, 13213), (83, 13222), (84, 13228), (86, 13255), (88, 13270), (89, 13306), (92, 13351), (94, 13363), (96, 13372), (97, 13384), (98, 13393),

Gene: Wizzo_16 Start: 12265, Stop: 13422, Start Num: 4

Candidate Starts for Wizzo_16:

(Start: 2 @12262 has 4 MA's), (Start: 4 @12265 has 41 MA's), (5, 12292), (6, 12316), (7, 12343), (8, 12349), (9, 12355), (10, 12370), (12, 12385), (13, 12388), (14, 12391), (17, 12421), (22, 12484), (24, 12502), (26, 12526), (27, 12535), (28, 12559), (29, 12568), (30, 12571), (31, 12574), (32, 12583), (33, 12601), (35, 12610), (36, 12664), (37, 12676), (38, 12679), (40, 12712), (41, 12718), (44, 12775), (45, 12790), (46, 12793), (47, 12799), (48, 12802), (49, 12817), (50, 12829), (54, 12868), (56, 12883), (58, 12892), (60, 12907), (61, 12910), (62, 12934), (64, 12949), (65, 12976), (66, 12979), (70, 13036), (71, 13069), (72, 13105), (74, 13132), (77, 13174), (78, 13189), (79, 13192), (81, 13216), (83, 13237), (84, 13243), (88, 13285), (89, 13321), (91, 13363), (94, 13378), (96, 13387), (97, 13399), (98, 13408),