

***Helicobacter pylori* Gateway® Clone Set, Recombinant in *Escherichia coli*, Plate 13**

**Catalog No. NR-19489**

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**Contributor:**

Pathogen Functional Genomics Resource Center at the J. Craig Venter Institute

**Manufacturer:**

BEI Resources

**Product Description:**

The *Helicobacter pylori* (*H. pylori*) Gateway® clone set consists of approximately 1600 sequence validated clones from *H. pylori*, strain 26695 and strain J99 cloned in *Escherichia coli* (*E. coli*) DH10B-T1 cells. Each open reading frame was constructed in vector [pDONR™221](#) (Invitrogen™) with an ATG start codon and no stop codon. The sequence was validated by full length sequencing of each clone with greater than 1X coverage and a mutation rate of less than 0.2%. Detailed information about each clone is shown in Table 1.

Information related to the use of Gateway® Clones can be obtained from [Invitrogen™](#). Recombination was facilitated through an *attB* substrate (*attB*-PCR product or a linearized *attB* expression clone) with an *attP* substrate (pDONR™221) to create an *attL*-containing entry clone. The entry clone contains recombinational cloning sites, *attL1* and *attL2* to facilitate gene transfer into a destination vector, M13 forward and reverse priming sites for sequencing and a kanamycin resistance gene for selection. Please refer to the [Invitrogen™ Gateway® Technology Manual](#) for additional details.

**Material Provided:**

Each inoculated well of the 96-well plate contains approximately 60 µL of *E. coli* culture (strain DH10B-T1) in Luria Bertani (LB) Broth containing 50 µg/mL kanamycin supplemented with 15% glycerol.

**Note:** Production in the 96-well format has increased risk of cross-contamination between adjacent wells. Individual clones should be purified (e.g. single colony isolation and purification using good microbiological practices) and sequence-verified prior to use. BEI Resources cannot confirm or validate any clone not identified on the plate information table.

**Packaging/Storage:**

NR-19489 was packaged aseptically in a 96-well plate. The product is provided frozen and should be stored at -80°C or colder immediately upon arrival. For long-term storage, the

vapor phase of a liquid nitrogen freezer is recommended. Freeze-thaw cycles should be avoided.

**Growth Conditions:**

Media:

LB Broth or Agar containing 50 µg/mL kanamycin.

Incubation:

Temperature: *E. coli*, strain DH10B-T1 clones should be grown at 37°C.

Atmosphere: Aerobic

Propagation:

1. Scrape top of frozen well with a pipette tip and streak onto agar plate.
2. Incubate the plates at 37°C for 24 hours.

**Citation:**

Acknowledgment for publications should read “The following reagent was obtained through BEI Resources, NIAID, NIH: *Helicobacter pylori* Gateway® Clone Set, Recombinant in *Escherichia coli*, Plate 13, NR-19489.”

**Biosafety Level: 1**

Appropriate safety procedures should always be used with this material. Laboratory safety is discussed in the following publication: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, and National Institutes of Health. [Biosafety in Microbiological and Biomedical Laboratories](#). 5th ed. Washington, DC: U.S. Government Printing Office, 2009; see [www.cdc.gov/biosafety/publications/bmbl5/index.htm](http://www.cdc.gov/biosafety/publications/bmbl5/index.htm).

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**References:**

1. Alm, R. A., et al. "Genomic-Sequence Comparison of

Two Unrelated Isolates of the Human Gastric Pathogen *Helicobacter pylori*." *Nature* 397 (1999): 176-180. PubMed: 9923682.

2. Jungblut, P. R., et al. "Comparative Proteome Analysis of *Helicobacter pylori*." *Mol. Microbiol.* 36 (2000): 710-725. PubMed: 10844659.

3. Tomb, J. F., et al. "The Complete Genome Sequence of the Gastric Pathogen *Helicobacter pylori*." *Nature* 388 (1997): 539-547. PubMed: 9252185.

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**Table 1: *Helicobacter pylori* Gateway® Clone Set, Recombinant in *Escherichia coli*, Plate 13 (ZHPAN)<sup>1</sup>**

| Strain | Clone | Well Position | Locus ID   | Description                  | ORF Length | Accession Number <sup>2</sup> | Average Depth of Coverage |
|--------|-------|---------------|------------|------------------------------|------------|-------------------------------|---------------------------|
| J99    | 60194 | A01           | JHP0961    | hypothetical protein jhp0961 | 220        | <a href="#">NP_223678.1</a>   | -                         |
| J99    | 60198 | A02           | NT01HP0661 | -                            | 175        | -                             | -                         |
| J99    | 60202 | A03           | NT01HP0967 | -                            | 202        | -                             | -                         |
| J99    | 60206 | A04           | NT01HP0899 | -                            | 208        | -                             | 1.9182692                 |
| J99    | 60210 | A05           | NT01HP0756 | -                            | 178        | -                             | -                         |
| J99    | 60214 | A06           | NT01HP0502 | -                            | 169        | -                             | -                         |
| J99    | 60218 | A07           | NT01HP0490 | -                            | 211        | -                             | -                         |
| J99    | 60222 | A08           | NT01HP1264 | -                            | 163        | -                             | -                         |
| J99    | 60226 | A09           | NT01HP0149 | -                            | 202        | -                             | -                         |
| J99    | 60230 | A10           | NT01HP1179 | -                            | 157        | -                             | 2                         |
| J99    | 60234 | A11           | NT01HP0582 | -                            | 178        | -                             | -                         |
| J99    | 60238 | A12           | NT01HP1686 | -                            | 151        | -                             | 2                         |
| J99    | 60242 | B01           | NT01HP1517 | -                            | 160        | -                             | -                         |
| J99    | 60246 | B02           | NT01HP0053 | -                            | 199        | -                             | -                         |
| J99    | 60250 | B03           | NT01HP0265 | -                            | 169        | -                             | -                         |
| J99    | 60254 | B04           | NT01HP1058 | -                            | 160        | -                             | -                         |
| J99    | 60262 | B05           | NT01HP0408 | -                            | 196        | -                             | -                         |
| J99    | 60268 | B06           | NT01HP0119 | -                            | 172        | -                             | 1.3604651                 |
| J99    | 60270 | B07           | NT01HP0664 | -                            | 154        | -                             | -                         |
| J99    | 60278 | B08           | NT01HP0533 | -                            | 178        | -                             | 2                         |
| J99    | 60282 | B09           | NT01HP0594 | -                            | 166        | -                             | -                         |
| J99    | 60286 | B10           | JHP0943    | hypothetical protein jhp0943 | 220        | <a href="#">NP_223660.1</a>   | -                         |
| J99    | 60292 | B11           | NT01HP0183 | -                            | 217        | -                             | 1.4285714                 |
| J99    | 60294 | B12           | NT01HP1108 | -                            | 166        | -                             | 2                         |
| J99    | 60298 | C01           | NT01HP0888 | -                            | 157        | -                             | -                         |
| J99    | 60302 | C02           | NT01HP0047 | -                            | 169        | -                             | -                         |
| J99    | 60306 | C03           | NT01HP1220 | -                            | 220        | -                             | -                         |
| J99    | 60310 | C04           | NT01HP0532 | -                            | 154        | -                             | -                         |
| J99    | 60314 | C05           | NT01HP0372 | -                            | 172        | -                             | -                         |
| J99    | 60318 | C06           | NT01HP1280 | -                            | 181        | -                             | -                         |
| J99    | 60322 | C07           | NT01HP0931 | -                            | 166        | -                             | -                         |
| J99    | 60326 | C08           | NT01HP1484 | -                            | 214        | -                             | -                         |
| J99    | 60334 | C09           | NT01HP0254 | -                            | 175        | -                             | -                         |
| J99    | 60338 | C10           | NT01HP1034 | -                            | 196        | -                             | 1.3673469                 |

| Strain | Clone | Well Position | Locus ID   | Description                  | ORF Length | Accession Number <sup>2</sup> | Average Depth of Coverage |
|--------|-------|---------------|------------|------------------------------|------------|-------------------------------|---------------------------|
| J99    | 60346 | C11           | NT01HP1095 | -                            | 166        | -                             | -                         |
| J99    | 60350 | C12           | NT01HP0120 | -                            | 154        | -                             | -                         |
| J99    | 60354 | D01           | NT01HP0504 | -                            | 199        | -                             | 2                         |
| J99    | 60359 | D02           | NT01HP0999 | -                            | 172        | -                             | -                         |
| J99    | 60362 | D03           | NT01HP1328 | -                            | 160        | -                             | -                         |
| J99    | 60366 | D04           | NT01HP0560 | -                            | 160        | -                             | -                         |
| J99    | 60370 | D05           | NT01HP1635 | -                            | 154        | -                             | -                         |
| J99    | 60374 | D06           | JHP0958    | hypothetical protein jhp0958 | 190        | <a href="#">NP_223675.1</a>   | -                         |
| J99    | 60378 | D07           | NT01HP0530 | -                            | 163        | -                             | -                         |
| J99    | 60382 | D08           | NT01HP0542 | -                            | 193        | -                             | -                         |
| J99    | 60390 | D09           | NT01HP0950 | -                            | 163        | -                             | -                         |
| J99    | 60394 | D10           | NT01HP0762 | -                            | 157        | -                             | -                         |
| J99    | 60398 | D11           | NT01HP1048 | -                            | 154        | -                             | -                         |
| J99    | 60402 | D12           | NT01HP0088 | -                            | 190        | -                             | 2                         |
| J99    | 60410 | E01           | NT01HP1523 | -                            | 196        | -                             | -                         |
| J99    | 60414 | E02           | NT01HP0555 | -                            | 220        | -                             | -                         |
| J99    | 60427 | E03           | JHP0829    | hypothetical protein jhp0829 | 181        | <a href="#">NP_223547.1</a>   | 1.3701657                 |
| J99    | 60430 | E04           | NT01HP1221 | -                            | 160        | -                             | -                         |
| J99    | 60434 | E05           | NT01HP1543 | -                            | 163        | -                             | -                         |
| J99    | 60440 | E06           | NT01HP0958 | -                            | 166        | -                             | 1.313253                  |
| J99    | 60442 | E07           | NT01HP1519 | -                            | 211        | -                             | -                         |
| J99    | 60447 | E08           | NT01HP0256 | -                            | 166        | -                             | 2                         |
| J99    | 60454 | E09           | NT01HP0250 | -                            | 163        | -                             | -                         |
| J99    | 60458 | E10           | NT01HP1383 | -                            | 154        | -                             | -                         |
| J99    | 60462 | E11           | NT01HP1476 | -                            | 214        | -                             | -                         |
| J99    | 60466 | E12           | NT01HP1487 | -                            | 223        | -                             | -                         |
| J99    | 60470 | F01           | NT01HP0974 | -                            | 184        | -                             | -                         |
| J99    | 60474 | F02           | NT01HP1418 | -                            | 205        | -                             | -                         |
| J99    | 60478 | F03           | NT01HP0090 | -                            | 169        | -                             | -                         |
| J99    | 60482 | F04           | NT01HP0370 | -                            | 160        | -                             | -                         |
| J99    | 60486 | F05           | NT01HP1628 | -                            | 163        | -                             | -                         |
| J99    | 60490 | F06           | NT01HP0868 | -                            | 214        | -                             | 2                         |
| J99    | 60494 | F07           | NT01HP0595 | -                            | 172        | -                             | -                         |
| J99    | 60498 | F08           | NT01HP1379 | -                            | 214        | -                             | -                         |
| J99    | 60502 | F09           | NT01HP0706 | -                            | 184        | -                             | -                         |
| J99    | 60506 | F10           | NT01HP1677 | -                            | 160        | -                             | 2                         |
| J99    | 60510 | F11           | NT01HP1224 | -                            | 169        | -                             | -                         |
| J99    | 60514 | F12           | NT01HP1478 | -                            | 169        | -                             | -                         |
| J99    | 60518 | G01           | NT01HP0825 | -                            | 214        | -                             | -                         |
| J99    | 60522 | G02           | NT01HP1238 | -                            | 166        | -                             | 2                         |
| J99    | 60526 | G03           | NT01HP0170 | -                            | 157        | -                             | 2                         |
| J99    | 60530 | G04           | NT01HP0531 | -                            | 190        | -                             | 2                         |
| J99    | 60538 | G05           | NT01HP0328 | -                            | 157        | -                             | -                         |
| J99    | 60542 | G06           | NT01HP0978 | -                            | 160        | -                             | -                         |
| J99    | 60546 | G07           | NT01HP0886 | -                            | 187        | -                             | -                         |
| J99    | 60550 | G08           | NT01HP0066 | -                            | 202        | -                             | -                         |
| J99    | 60555 | G09           | JHP1132    | hypothetical protein jhp1132 | 214        | <a href="#">NP_223850.1</a>   | -                         |
| J99    | 60558 | G10           | NT01HP0200 | -                            | 199        | -                             | 2                         |
| J99    | 60562 | G11           | NT01HP1222 | -                            | 214        | -                             | -                         |
| J99    | 60570 | G12           | NT01HP0847 | -                            | 172        | -                             | 2                         |

| Strain | Clone | Well Position | Locus ID   | Description                                                                                                                                                             | ORF Length | Accession Number <sup>2</sup> | Average Depth of Coverage |
|--------|-------|---------------|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-------------------------------|---------------------------|
| J99    | 60581 | H01           | JHP0701    | hypothetical protein jhp0701                                                                                                                                            | 388        | <a href="#">NP_223419.1</a>   | 1.1829897                 |
| J99    | 60583 | H02           | NT01HP1473 | -                                                                                                                                                                       | 274        | -                             | -                         |
| J99    | 60586 | H03           | NT01HP0650 | lipopolysaccharide biosynthesis glycosyl transferase {Helicobacter pylori;}<br>^ GB CAD11297.1 18075747 HPY 418355 lipopolysaccharide biosynthesis glycosyl transferase | 787        | <a href="#">AAD06145.1</a>    | 2                         |
| J99    | 60591 | H04           | NT01HP1117 | -                                                                                                                                                                       | 514        | -                             | -                         |
| J99    | 60594 | H05           | NT01HP0334 | -                                                                                                                                                                       | 262        | -                             | -                         |
| J99    | 60598 | H06           | NT01HP1054 | -                                                                                                                                                                       | 280        | -                             | -                         |
| J99    | 60610 | H07           | JHP0028    | hypothetical protein jhp0028                                                                                                                                            | 307        | <a href="#">NP_222750.1</a>   | 2                         |
| J99    | 60614 | H08           | JHP0584    | hypothetical protein jhp0584                                                                                                                                            | 538        | <a href="#">NP_223302.1</a>   | 2                         |
| J99    | 60622 | H09           | NT01HP1322 | -                                                                                                                                                                       | 331        | -                             | 2                         |
| J99    | 60627 | H10           | NT01HP0007 | -                                                                                                                                                                       | 301        | -                             | -                         |
| J99    | 60630 | H11           | JHP0960    | hypothetical protein jhp0960                                                                                                                                            | 253        | <a href="#">NP_223677.1</a>   | 2                         |
| J99    | 60635 | H12           | JHP0044    | type II DNA modification enzyme (methyltransferase)                                                                                                                     | 592        | <a href="#">NP_222766.1</a>   | -                         |

<sup>1</sup>All information in this table was provided by J. Craig Venter Institute at the time of deposition.

<sup>2</sup>Not all genes were annotated at the time this document was produced (NA – gene accession number not available).