

***Mycobacterium tuberculosis* Gateway® Clone Set, Recombinant in *Escherichia coli*, Plate 1**

**Catalog No. NR-19637**

This reagent is the tangible property of the U.S. Government.

**For research use only. Not for use in humans.**

**Contributor:**

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

**Manufacturer:**

BEI Resources

**Product Description:**

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 does not confirm or validate individual mutants provided by the contributor.

The *Mycobacterium tuberculosis* (*M. tuberculosis*) Gateway® clone set consists of 42 plates which contain 3724 sequence validated clones [3294 *M. tuberculosis*, strain H37Rv clones supplemented with 430 unique open reading frames (ORF) from *M. tuberculosis*, strain CDC1551] cloned in *Escherichia coli* (*E. coli*) DH10B-T1 cells. Each ORF was recombined in vector pDONR™221 with an ATG start codon and no stop codon. The sequence was validated by full-length sequencing of each entry 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.

Plate orientation and viability were confirmed for NR-19637.

**Material Provided:**

Each inoculated well of the 96-well plate contains approximately 60 µL of culture in Luria Bertani (LB) broth containing 50 µg/mL kanamycin supplemented with 15% glycerol.

**Packaging/Storage:**

NR-19637 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: 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 1 day.

**Citation:**

Acknowledgment for publications should read “The following reagent was obtained through BEI Resources, NIAID, NIH: *Mycobacterium tuberculosis* Gateway® Clone Set, Recombinant in *Escherichia coli*, Plate 1, NR-19637.”

**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 \(BMBL\)](#), 6th ed. Washington, DC: U.S. Government Printing Office, 2020.

**Disclaimers:**

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**References:**

1. Cole, S. T., et al. "Deciphering the Biology of *Mycobacterium tuberculosis* from the Complete Genome Sequence." *Nature* 393 (1998): 537-544. PubMed: 9634230.

2. Camus, J. C., et al. "Re-Annotation of the Genome Sequence of *Mycobacterium tuberculosis* H37Rv." *Microbiology* 148 (2002): 2967-2973. PubMed: 12368430.

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**Table 1: *Mycobacterium tuberculosis* Gateway® Clones, Plate 1 (ZMTDA)<sup>1</sup>**

Clone	Well Position	ORF Length	Locus ID	Description	Accession Number	Average Depth of Coverage
71201	A01	124	Rv1572c	hypothetical protein Rv1572c	NP_216088.2	2
71005	A02	151	Rv3461c	50S ribosomal protein L36 (rpmJ)	NP_217978.1	2
71053	A03	181	Rv3924c	50S ribosomal protein L34 (rpmH)		2
71013	A04	184	Rv2452c	hypothetical protein Rv2452c	NP_216968.1	2
71167	A05	193	Rv0657c	hypothetical protein Rv0657c	NP_215171.1	2.69948187
71177	A06	211	Rv0666	hypothetical protein Rv0666	NP_215180.1	2
71225	A07	214	Rv1693	hypothetical protein Rv1693	NP_216209.1	2
71073	A08	217	Rv2099c	PE family protein (PE21)		2
70874	A09	220	Rv0810c	hypothetical protein Rv0810c	NP_215325.1	2
70913	A10	223	Rv2371	PE-PGRS family protein (PE_PGRS40)	YP_177875.1	2
71141	A11	229	Rv2806	hypothetical protein Rv2806	NP_217322.1	2
71121	A12	235	Rv1113	hypothetical protein Rv1113	NP_215629.1	1.99574468
71181	B01	241	Rv3648c	cold shock protein A (cspA)	NP_218165.1	2
70937	B02	244	Rv0763c	ferredoxin	NP_215277.1	2
70966	B03	247	Rv1054	integrase	NP_215570.2	1.27530364
71145	B04	253	Rv2377c	putative protein MbtH (mbtH)	NP_216893.1	2
70861	B05	253	Rv2830c	hypothetical protein Rv2830c	NP_217346.1	2
70853	B06	253	Rv3221c	anti-sigma factor	YP_177945.1	2
71210	B07	256	Rv1893	hypothetical protein Rv1893	NP_216409.1	2
71062	B08	259	Rv0378	glycine rich protein	NP_214892.1	1.99227799
71214	B09	259	Rv0699	hypothetical protein Rv0699	NP_215213.1	2
71097	B10	259	Rv1584c	phiRv1 phage protein	NP_216100.1	2
70933	B11	259	Rv2493	hypothetical protein Rv2493	NP_217009.1	2
71033	B12	262	Rv2049c	hypothetical protein Rv2049c	NP_216565.1	2
71217	C01	265	Rv0298	hypothetical protein Rv0298	NP_214812.1	2
71030	C02	268	Rv0947c	putative mycolyl transferase		1.94776119
70953	C03	271	Rv2663	hypothetical protein Rv2663	NP_217179.1	2
71022	C04	277	Rv3053c	glutaredoxin electron transport protein NrdH (nrdH)	NP_217569.1	2
70869	C05	280	Rv3321c	hypothetical protein Rv3321c	NP_217838.1	2
71001	C06	283	Rv0608	hypothetical protein Rv0608	NP_215122.1	2
71169	C07	283	Rv0750	hypothetical protein Rv0750	NP_215264.1	2
71154	C08	283	Rv2595	hypothetical protein Rv2595	NP_217111.1	2
70987	C09	283	Rv2654c	phiRv2 prophage protein	NP_217170.1	1.61837456
70929	C10	286	Rv3022c	PE family protein (PE29)	YP_177685.1	2
70981	C11	292	Rv0689c	hypothetical protein Rv0689c	NP_215203.1	1.99657534
70886	C12	292	Rv2975c	hypothetical protein Rv2975c	NP_217491.1	1.85958904
71230	D01	292	Rv3654c	hypothetical protein Rv3654c	NP_218171.1	-
70957	D02	295	Rv1398c	hypothetical protein Rv1398c	NP_215914.1	2
71133	D03	295	Rv2342	hypothetical protein Rv2342	NP_216858.1	2
70973	D04	322	Rv0882	hypothetical protein Rv0882	NP_215397.1	2
70926	D05	322	Rv1037c	putative ESAT-6 like protein ESXI (ESAT-6 like protein 1) (esxl)	NP_215553.1	2

Clone	Well Position	ORF Length	Locus ID	Description	Accession Number	Average Depth of Coverage
70857	D06	322	Rv2346c	putative ESAT-6 like protein ESXO (ESAT-6 like protein 6) (esxO)	NP_216862.1	2
71105	D07	325	Rv0150c	hypothetical protein Rv0150c	NP_214664.1	2
71113	D08	325	Rv3875	6 kDa early secretory antigenic target ESXA (ESAT-6) (esxA)	YP_178023.1	2
71173	D09	325	Rv3890c	ESAT-6 like protein ESXC (ESAT-6 like protein 11) (esxC)	NP_218407.1	2
71045	D10	328	Rv0053	30S ribosomal protein S6 (rpsF)	NP_214567.1	2
70962	D11	328	Rv0190	hypothetical protein Rv0190	NP_214704.1	2
70893	D12	328	Rv0288	low molecular weight protein antigen 7 ESXH (10 kDa antigen) (CFP-7) (protein TB10.4) (esxH)	NP_214802.1	2
70949	E01	328	Rv0829	hypothetical protein Rv0829	NP_215344.1	2
71025	E02	328	Rv2146c	transmembrane protein	NP_216662.1	2
70997	E03	328	Rv2433c	hypothetical protein Rv2433c	NP_216949.1	2
71185	E04	328	Rv3019c	secreted ESAT-6 like protein ESXR (TB10.3) (ESAT-6 like protein 9) (esxR)	NP_217535.1	2
70882	E05	331	Rv0250c	hypothetical protein Rv0250c	NP_214764.1	2
71089	E06	331	Rv0287	hypothetical protein Rv0287 (esxG)	NP_214801.1	1.83685801
70905	E07	331	Rv0508	hypothetical protein Rv0508	NP_215022.1	2
71137	E08	331	Rv1012	hypothetical protein Rv1012	NP_215528.1	2
71093	E09	331	Rv2117	hypothetical protein Rv2117	NP_216633.1	2
71206	E10	331	Rv2561	hypothetical protein Rv2561	NP_217077.1	2
70990	E11	331	Rv3020c	Esat-6 like protein EsxS (esxS)	YP_177919.1	2
71157	E12	334	Rv0968	hypothetical protein Rv0968	NP_215483.1	2
71110	F01	334	Rv1197	Esat-6 like protein EsxK (Esat-6 like protein 3) (esxK)	NP_215713.1	2
71010	F02	334	Rv1951c	hypothetical protein Rv1951c	NP_216467.1	2
70979	F03	334	Rv1959c	hypothetical protein Rv1959c	NP_216475.1	2.31137725
70969	F04	334	Rv2107	PE family protein (PE22)	YP_177858.1	2
70865	F05	334	Rv2347c	putative ESAT-6 like protein ESXP (ESAT-6 like protein 7) (esxP)	NP_216863.1	2
71066	F06	334	Rv3477	PE family protein (PE31)	YP_177975.1	1.90419162
71191	F07	337	Rv0514	transmembrane protein	NP_215028.1	1.23442136
71149	F08	337	Rv0916c	PE family protein (PE7)	YP_177766.1	-
71198	F09	337	Rv1791	PE family protein (PE19)	YP_177837.1	1.77744807
71305	F10	337	Rv1806	PE family protein (PE20)	YP_177843.1	2
71314	F11	337	Rv2271	hypothetical protein Rv2271	NP_216787.1	2
71393	F12	337	Rv2431c	PE family protein (PE25)	YP_177882.1	2
71449	G01	337	Rv2489c	hypothetical protein Rv2489c	NP_217005.1	2
71425	G02	337	Rv3012c	aspartyl/glutamyl-tRNA amidotransferase subunit C (gatC)	NP_217528.1	2
71281	G03	337	Rv3155	NADH dehydrogenase subunit K (nuoK)	NP_217671.1	2
71278	G04	337	Rv3407	hypothetical protein Rv3407	NP_217924.1	2
71513	G05	337	Rv3872	PE family-related protein (PE35)	YP_178021.1	2
71557	G06	340	Rv0299	hypothetical protein Rv0299	NP_214813.1	2
71270	G07	340	Rv0543c	hypothetical protein Rv0543c	NP_215057.1	2
71367	G08	340	Rv2369c	hypothetical protein Rv2369c	NP_216885.1	2.2
71369	G09	340	Rv2699c	hypothetical protein Rv2699c	NP_217215.1	1.99411765
71347	G10	340	Rv3418c	co-chaperonin GroES (groES)	NP_217935.1	2.25588235
71473	G11	340	Rv3444c	putative ESAT-6 like protein ESXT (esxT)	NP_217961.1	2
71386	G12	340	Rv3760	hypothetical protein Rv3760	NP_218277.1	2
71453	H01	340	Rv3874	10 kDa culture filtrate antigen EsxB (esxB)	NP_218391.1	2
71569	H02	343	Rv0700	30S ribosomal protein S10 (rpsJ)	NP_215214.1	2
71553	H03	343	Rv0793	hypothetical protein Rv0793	NP_215308.1	2
71265	H04	343	Rv2021c	transcriptional regulatory protein	NP_216537.1	2
71525	H05	343	Rv2056c	30S ribosomal protein S14 (rpsN)	NP_216572.1	2
71534	H06	343	Rv2901c	hypothetical protein Rv2901c	NP_217417.1	1.89212828
71598	H07	346	Rv0285	PE family protein (PE5)	YP_177710.1	1.93930636
71578	H08	346	Rv0430	hypothetical protein Rv0430	NP_214944.1	2
71493	H09	346	Rv0659c	hypothetical protein Rv0659c	NP_215173.1	2
71537	H10	346	Rv1898	hypothetical protein Rv1898	NP_216414.1	2
71401	H11	346	Rv3385c	hypothetical protein Rv3385c	NP_217902.1	2
71405	H12	349	Rv0603	hypothetical protein Rv0603	NP_215117.1	1.88825215

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