Mycobacterium tuberculosis Gateway® Clone Set, Recombinant in *Escherichia coli*, Plate 4

Catalog No. NR-19640

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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 *att*B substrate (*att*B-PCR product or a linearized *att*B expression clone) with an *att*P substrate (pDONR™221) to create an *att*L-containing entry clone. The entry clone contains recombinational cloning sites, *att*L1 and *att*L2 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-19640.

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-19640 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 4, NR-19640."

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.

Support Provided by NIAID

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Table 1: *Mycobacterium tuberculosis*, Gateway® Clones, Plate 4 (ZMTDD)[1]

Clone	Well Position	ORF Length	Locus ID	Description	Accession Number	Average Depth of Coverage
73090	A01	865	Rv2957	glycosyl transferase	NP_217473.1	4.04277457
73154	A02	868	Rv0153c	phosphotyrosine protein phosphatase PTPB (protein-tyrosine-phosphatase) (PTPase) (ptbB)	NP_214667.1	1.73041475
72826	A03	868	Rv2136c	undecaprenyl pyrophosphate phosphatase (uppP)	NP_216652.1	3.29608295
72860	A04	868	Rv2938	daunorubicin-DIM-transport integral membrane protein ABC transporter DrrC (drrC)	NP_217454.1	2
72841	A05	871	Rv3487c	esterase/lipase LipF (lipF)	NP_218004.1	3.05740528
72874	A06	874	Rv1460	transcriptional regulatory protein	NP_215976.2	1.49084668
73097	A07	874	Rv2119	hypothetical protein Rv2119	NP_216635.1	3.03546911
72854	A08	877	Rv2409c	hypothetical protein Rv2409c	NP_216925.1	3.26567845
72971	A09	880	Rv3243c	hypothetical protein Rv3243c	NP_217760.1	3.43977273
72936	A10	880	Rv3438	hypothetical protein Rv3438	NP_217955.1	1.9625
73046	A11	880	Rv3783	O-antigen/lipopolysaccharide transport integral membrane protein ABC transporter RfbD (rfbD)	NP_218300.1	3.92840909
72911	A12	880	Rv3878	hypothetical protein Rv3878	NP_218395.1	3.08977273
73014	B01	883	Rv2605c	acyl-CoA thioesterase II (tesB2)	NP_217121.1	2.93318233
72926	B02	883	Rv3333c	hypothetical protein Rv3333c	NP_217850.1	1.66591166
73131	B03	886	Rv1978	hypothetical protein Rv1978	NP_216494.1	3.87358916
72922	B04	892	Rv2313c	hypothetical protein Rv2313c	NP_216829.1	1.72309417
72879	B05	892	Rv3435c	transmembrane protein	NP_217952.1	3.55605381
72810	B06	892	Rv3810	exported repetitive protein precursor PirG (cell surface protein) (EXP53) (pirG)	NP_218327.1	1.70852018
72961	B07	895	Rv1062	hypothetical protein Rv1062	NP_215578.1	2.87932961
73037	B08	895	Rv1472	enoyl-CoA hydratase (echA12)	NP_215988.1	2.95642458
72801	B09	898	Rv0375c	carbon monoxyde dehydrogenase medium subunit	NP_214889.1	3.04565702
72994	B10	898	Rv0436c	CDP-diacylglycerol--serine O-phosphatidyltransferase (pssA)	NP_214950.1	3.80400891
73141	B11	898	Rv1118c	hypothetical protein Rv1118c	NP_215634.1	2.97772829
72990	B12	898	Rv1244	lipoprotein LpqZ (lpqZ)	NP_215760.1	1.29064588
73034	C01	901	Rv0470c	hypothetical protein Rv0470A	YP_177622.1	2.88346282
72938	C02	901	Rv1455	hypothetical protein Rv1455	NP_215971.1	1.32297447
73073	C03	901	Rv1920	hypothetical protein Rv1920	NP_216436.1	2.98224195
73027	C04	901	Rv2877c	integral membrane protein	YP_177912.1	3.24750277
73049	C05	901	Rv3057c	short chain dehydrogenase	NP_217573.1	3.02219756
73082	C06	904	Rv0881	rRNA methyltransferase	NP_215396.1	1.67035398
73087	C07	904	Rv2161c	hypothetical protein Rv2161c	NP_216677.1	3.20685841
73101	C08	907	Rv2275	hypothetical protein Rv2275	NP_216791.1	2.98235943
73022	C09	907	Rv2924c	formamidopyrimidine-DNA glycosylase (fpg)	NP_217440.1	2.73980154
72951	C10	907	Rv2937	daunorubicin-DIM-transport integral membrane protein ABC transporter DrrB (drrB)	NP_217453.1	1.22601985
72986	C11	907	Rv3335c	integral membrane protein	NP_217852.1	1.52701213
72865	C12	907	Rv3555c	hypothetical protein Rv3555c	NP_218072.1	2.94928335
73161	D01	910	Rv1189	RNA polymerase sigma factor SigI (sigI)	NP_215705.1	1.58571429

Clone	Well Position	ORF Length	Locus ID	Description	Accession Number	Average Depth of Coverage
73234	D02	911	Rv1282c	oligopeptide-transport integral membrane protein ABC transporter OppC (oppC)	NP_215798.1	3.54226125
73369	D03	913	Rv2911	D-alanyl-D-alanine carboxypeptidase (dacB2)	YP_177914.1	1.59255203
73518	D04	916	Rv0534c	1,4-dihydroxy-2-naphthoate octaprenyltransferase (menA)	NP_215048.1	1.38209607
73285	D05	922	Rv1369c	transposase	NP_215885.1	1.54121475
73215	D06	922	Rv2026c	hypothetical protein Rv2026c	NP_216542.1	1.78308026
73390	D07	922	Rv3395c	hypothetical protein Rv3395A	YP_177969.1	3.57375271
73210	D08	925	Rv0289	hypothetical protein Rv0289	NP_214803.1	1.3372973
73457	D09	925	Rv2886c	resolvase	NP_217402.1	1.47459459
73424	D10	925	Rv3232c	transcriptional regulatory protein PvdS (pvdS)	NP_217749.1	1.70054054
73381	D11	928	Rv0495c	hypothetical protein Rv0495c	NP_215009.1	1.5700431
73329	D12	928	Rv2751	hypothetical protein Rv2751	NP_217267.1	3.72198276
73522	E01	931	Rv1076	lipase LipU (lipU)	NP_215592.1	1.4650913
73313	E02	931	Rv2415c	hypothetical protein Rv2415c	NP_216931.1	1.58539205
73326	E03	934	Rv2793c	tRNA pseudouridine synthase B (truB)	NP_217309.1	3.25481799
73380	E04	943	Rv0936	phosphate ABC transporter transmembrane protein (pstA2)	NP_215451.1	1.8388123
73373	E05	946	Rv0281	hypothetical protein Rv0281	NP_214795.1	1.42494715
73396	E06	946	Rv0428c	hypothetical protein Rv0428c	NP_214942.1	1.86786469
73441	E07	946	Rv0650	sugar kinase	NP_215164.1	2.83192389
73481	E08	946	Rv1486c	hypothetical protein Rv1486c	NP_216002.2	3.54862579
73525	E09	946	Rv2458	homocysteine methyltransferase (mmuM)	NP_216974.1	3.77484144
73505	E10	949	Rv2835c	sn-glycerol-3-phosphate transport integral membrane protein ABC transporter UGPA (ugpA)	NP_217351.1	1.46786091
73297	E11	952	Rv1111c	hypothetical protein Rv1111c	NP_215627.2	1.52521008
73409	E12	952	Rv1324	thioredoxin	NP_215840.1	1.51365546
73229	F01	952	Rv3298c	esterase lipoprotein LpqC (lpqC)	NP_217815.1	3.3802521
73406	F02	955	Rv0930	phosphate ABC transporter transmembrane protein (pstA1)	NP_215445.2	1.41884817
73266	F03	964	Rv0142	hypothetical protein Rv0142	NP_214656.1	1.48858921
73264	F04	964	Rv3665c	peptide ABC transporter transmembrane protein (dppB)	NP_218182.1	1.5
73366	F05	967	Rv2252	diacylglycerol kinase	NP_216768.1	2.44984488
73358	F06	967	Rv2776c	oxidoreductase	NP_217292.1	1.48293692
73480	F07	970	Rv2334	cysteine synthase A CysK1 (cysK1)	YP_177868.1	1.79484536
73172	F08	970	Rv3695	hypothetical protein Rv3695	NP_218212.1	1.81237113
73454	F09	976	Rv1092c	pantothenate kinase (coaA)	NP_215608.1	1.85553279
73207	F10	976	Rv2282c	LysR family transcriptional regulator	NP_216798.1	2.57172131
73302	F11	979	Rv0796	transposase IS6110	NP_215311.1	1.46067416
73431	F12	982	Rv0233	ribonucleotide-diphosphate reductase subunit beta (nrdB)	NP_214747.1	2.59775967
73339	G01	982	Rv2727c	tRNA delta(2)-isopentenylpyrophosphate transferase (miaA)	NP_217243.1	1.88289206
73356	G02	982	Rv2824c	hypothetical protein Rv2824c	NP_217340.1	1.74541752
73228	G03	982	Rv2905	alanine rich lipoprotein LppW (lppW)	NP_217421.1	1.43584521
73220	G04	982	Rv3485c	short chain dehydrogenase	NP_218002.1	1.79327902
73433	G05	982	Rv3767c	hypothetical protein Rv3767c	NP_218284.1	2.59063136
73474	G06	988	Rv0604	lipoprotein lpqo (lpqO)	NP_215118.1	2.52732794
73534	G07	988	Rv1296	homoserine kinase (thrB)	NP_215812.1	2.53846154
73203	G08	988	Rv1845c	hypothetical protein Rv1845c	NP_216361.1	1.6417004
73180	G09	988	Rv2413c	hypothetical protein Rv2413c	NP_216929.1	1.79149798
73183	G10	991	Rv1201c	transferase	NP_215717.1	1.23713421
73426	G11	991	Rv2985	hydrolase MutT1 (mutT1)	NP_217501.1	2.65489405
73485	G12	994	Rv3176c	epoxide hydrolase MesT (mesT)	YP_177938.1	2.46177062
73258	H01	997	Rv0787	hypothetical protein Rv0787	NP_215301.1	1.37311936
73495	H02	997	Rv1399c	lipase LipH (lipH)	NP_215915.1	2.45135406
73467	H03	997	Rv3683	hypothetical protein Rv3683	NP_218200.1	2.23570712
73397	H04	1000	Rv1400c	lipase LipI (lipI)	NP_215916.1	2.391
73513	H05	1000	Rv1949c	hypothetical protein Rv1949c	NP_216465.1	1.483
73173	H06	1009	Rv1336	cysteine synthase B CysM (cysM)	NP_215852.1	1.40336967
73197	H07	1009	Rv3625c	cell cycle protein MESJ (mesJ)	NP_218142.1	1.52923687
73501	H08	1015	Rv2893	oxidoreductase	NP_217409.1	1.34679803
73449	H09	1018	Rv1538c	L-aparaginase ansA (ansA)	NP_216054.1	1.35265226
73401	H10	1027	Rv1188	proline dehydrogenase	NP_215704.1	1.39240506
73537	H11	1027	Rv2649	transposase IS6110	NP_217165.1	2.3962999
73241	H12	1027	Rv3382c	LYTB-like protein LYTB1 (lytB1)	YP_177967.1	1.42161636

[1]All information in this table was provided by the J. Craig Venter Institute at the time of deposition.

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E-mail: contact@beiresources.org
Tel: 800-359-7370
Fax: 703-365-2898