

***Salmonella enterica* subsp. *enterica*, Strain 14028s (Serovar Typhimurium) Single-Gene Deletion Mutant Library, Plate SGD_100/101_Kan**

Catalog No. NR-42845

For research use only. Not for human use.

Contributor:

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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 *Salmonella enterica* (*S. enterica*) subsp. *enterica*, strain 14028s (serovar Typhimurium) targeted single-gene deletion (SGD) mutant library contains a total of 3,773 individual genes deleted simultaneously across two collections of mutants differentiated by kanamycin or chloramphenicol resistance.^{1,2} The kanamycin-resistant mutant collection contains 3,517 mutants distributed among 11 96-well plates, in which a single gene is replaced by a cassette conferring the kanamycin resistance gene, and includes 9 double mutants that contain both kanamycin and chloramphenicol cassettes. Deletions were confirmed by the depositor.^{1,2}

Genes were targeted for deletion by primers designed to preserve the first and last 30 bases of each deleted gene.² Gene replacement followed a modified Lambda-Red technique, with an added T7 RNA polymerase promoter positioned in plasmid [pCLF3](#) to generate a gene-specific transcript from the *Salmonella* genome directly downstream of each mutant.²⁻⁴ Detailed information about each mutant is shown in Table 1.

Note: The strain designation on the plate, strain CDC 6516-60, is incorrect. The correct strain designation is strain 14028s. *S. enterica* subsp. *enterica*, strain 14028s was originally known as strain 14028. A variant of the original strain with a rough colony morphology was designated 14028r and the original smooth strain was renamed 14028s. Strain 14028 is a descendent of strain CDC 6516-60, which was isolated from pools of hearts and livers of 4-week-old chickens.⁵ The complete genome of *S. enterica* subsp. *enterica*, strain 14028s (GenBank: [CP001363.1](#)) and plasmid (GenBank: [CP001362.1](#)) sequences are available.

Material Provided:

Each inoculated well of the 96-well plate contains approximately 50 µL of culture in Luria Bertani (LB) broth containing 60 µg/mL kanamycin supplemented with 10% glycerol.

Packaging/Storage:

NR-42845 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 60 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 24 hours.

Citation:

Acknowledgment for publications should read "The following reagent was obtained through BEI Resources, NIAID, NIH: *Salmonella enterica* subsp. *enterica*, Strain 14028s (Serovar Typhimurium) Single-Gene Deletion Mutant Library, Plate SGD_100/101_Kan, NR-42845."

Biosafety Level: 2

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.

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References:

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Table 1: *S. enterica* subsp. *enterica*, Strain 14028s (Serovar Typhimurium) Single-Gene Deletion Mutant Library, Plate SGD_100/101_Kan^{1,2}

Well Position	Gene Type	Gene Start	Gene End	Target Gene (Locus Tag)	Deleted Region Start	Deleted Region End	Gene Strand	Description
A02	CDS	47418	48317	STM14_0049	47448	48286	-	Transcriptional activator NhaR
A03	CDS	122352	123197	STM14_0123	122382	123166	-	DNA-binding transcriptional regulator AraC
A04	CDS	135281	136225	STM14_0138	135311	136194	-	Leucine transcriptional activator
A05	CDS	139049	140053	STM14_0142	139079	140022	-	DNA-binding transcriptional regulator FruR
A06	CDS	176029	176793	STM14_0182	176059	176762	-	Transcriptional regulator PdhR
A09	CDS	358485	359540	STM14_0369	358515	359509	-	DNA polymerase IV
A12	CDS	508798	509070	STM14_0534	508828	509039	-	Transcriptional regulator HU subunit beta
B01	CDS	534448	535101	STM14_0561	534478	535070	-	DNA-binding transcriptional repressor AcrR
B03	CDS	844782	845570	STM14_0905	844812	845539	+	DNA-binding transcriptional regulator ModE
B04	CDS	860511	861551	STM14_0920	860541	861520	-	Biotin synthetase
B07	CDS	995071	995565	STM14_1083	995101	995534	-	Leucine-responsive transcriptional regulator
B09	CDS	1157343	1158263	STM14_1264	1157373	1158232	+	Curved DNA-binding protein CbpA
B10	CDS	1257058	1260504	STM14_1391	1257088	1260473	+	Transcription-repair coupling factor
B12	CDS	1386633	1388582	STM14_1576	1386663	1388551	-	DNA topoisomerase III
C02	CDS	1575079	1576299	STM14_1799	1575109	1576268	-	<i>pts</i> operon transcriptional repressor
C03	CDS	1607474	1607908	STM14_1838	1607504	1607820	+	DNA-binding transcriptional repressor MarR
C05	CDS	1819096	1820070	STM14_2072	1819126	1820039	+	Transcriptional regulator CysB
C08	CDS	1828097	1828978	STM14_2084	1828127	1828947	+	Hypothetical protein
C09	CDS	1876760	1877410	STM14_2137	1876790	1877379	-	Transcriptional regulator NarL
C10	CDS	1916578	1917297	STM14_2182	1916608	1917266	+	Fatty acid metabolism regulator
C11	CDS	1946952	1947161	STM14_2220	1946982	1947130	+	Cold shock-like protein CspC
C12	CDS	1949076	1949867	STM14_2228	1949106	1949836	+	Putative transcriptional repressor
D02	CDS	2339668	2340690	STM14_2700	2339698	2340659	+	DNA-binding transcriptional regulator GalS
D03	CDS	2421547	2422197	STM14_2801	2421577	2422166	-	Transcriptional regulator RcsB
D06	CDS	2656619	2657191	STM14_3053	2656583	2657160	-	Glycine cleavage system transcriptional repressor
D07	CDS	2755212	2755550	STM14_3140	2755242	2755519	+	Nitrogen regulatory protein P-II 1
D11	CDS	2974872	2975831	STM14_3390	2974902	2975800	-	Ribonucleotide-diphosphate reductase subunit beta
D12	CDS	2981356	2981886	STM14_3397	2981386	2981855	-	Transcriptional repressor MprA
E01	CDS	2995089	2996150	STM14_3417	2995119	2996119	+	Recombinase A
E02	CDS	3001872	3002645	STM14_3428	3001902	3002614	-	DNA-binding transcriptional repressor SrlR
E03	CDS	3019362	3019823	STM14_3448	3019392	3019792	+	Formate hydrogenlyase regulatory protein HycA
E04	CDS	3023829	3026018	STM14_3455	3023970	3025987	-	Formate hydrogen-lyase transcriptional activator
E05	CDS	3070516	3073083	STM14_3511	3070546	3073052	-	DNA mismatch repair protein
E06	CDS	3154081	3154998	STM14_3596	3154111	3154967	+	DNA-binding transcriptional activator GcvA
E07	CDS	3190433	3191461	STM14_3636	3190463	3191430	-	DNA-binding transcriptional regulator GalR

Product Information Sheet for NR-42845

Well Position	Gene Type	Gene Start	Gene End	Target Gene (Locus Tag)	Deleted Region Start	Deleted Region End	Gene Strand	Description
E08	CDS	3193884	3194819	STM14_3639	3193914	3194788	-	DNA-binding transcriptional regulator LysR
E11	CDS	3244729	3245622	STM14_3703	3244759	3245591	-	Chromosome replication initiation inhibitor protein
F02	CDS	3498306	3499739	STM14_4008	3498336	3499708	-	RNA polymerase factor sigma-54
F03	CDS	3541927	3542397	STM14_4054	3541957	3542366	-	Arginine repressor
F04	CDS	3570161	3570457	STM14_4083	3570191	3570426	-	DNA-binding protein Fis
F05	CDS	3595823	3596248	STM14_4115	3595853	3596217	+	Zinc-responsive transcriptional regulator
F09	CDS	80499	80957	STM14_0080	80529	80926	-	Transposase
F10	CDS	3674449	3674922	STM14_4218	3674479	3674891	-	Transcription elongation factor GreB
F11	CDS	3690798	3693503	STM14_4234	3690828	3693472	-	Transcriptional regulator MalT
F12	CDS	3700146	3700904	STM14_4242	3700176	3700873	+	DNA-binding transcriptional repressor GlpR
G01	CDS	3725866	3726861	STM14_4266	3725896	3726830	+	Gluconate operon transcriptional repressor
G03	CDS	3765041	3765442	STM14_4312	3765071	3765411	-	Nickel responsive regulator
G04	CDS	3861843	3863021	STM14_4417	3861873	3862990	-	Xylose operon regulatory protein
G05	CDS	3901256	3902032	STM14_4452	3901295	3902001	-	DNA-binding transcriptional repressor LldR
G06	CDS	3938977	3939573	STM14_4494	3939007	3939542	-	Nucleoid occlusion protein
G07	CDS	3947468	3947743	STM14_4506	3947498	3947712	-	DNA-directed RNA polymerase subunit omega
G08	CDS	4098392	4098850	STM14_4673	4098422	4098819	+	DNA-binding transcriptional regulator AsnC
G09	CDS	4110237	4111235	STM14_4683	4110276	4111204	-	Transcriptional repressor RbsR
G10	CDS	4122664	4124310	STM14_4698	4122694	4124279	-	Acetolactate synthase 2 catalytic subunit
G11	CDS	4315766	4316956	STM14_4922	4315796	4316727	+	DNA-binding transcriptional regulator CytR
G12	CDS	4356665	4357582	STM14_4959	4356695	4357551	-	DNA-binding transcriptional regulator OxyR
H01	CDS	4475342	4475857	STM14_5098	4475372	4475826	+	Zinc uptake transcriptional repressor
H02	CDS	4554739	4555815	STM14_5170	4554769	4555640	+	DNA-binding transcriptional regulator MelR
H03	CDS	4855499	4856368	STM14_5507	4855529	4856337	+	Transcriptional regulator

¹All information in this table was provided by the depositor at the time of deposition.

²Construction of each listed mutant has been confirmed either by PCR or by an array indicating a functional T7 promoter in the correct location and orientation. Mutants that did not produce such a signal on the array, or did not yield the expected mutant product during PCR, are not listed.