

***Escherichia coli*, Strain GM2163λpir**

**Catalog No. NR-50351**

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

**Contributor:**

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**Manufacturer:**

BEI Resources

**Product Description:**

*Escherichia coli* (*E. coli*), strain GM2163λpir contains the *pir* gene, which allows genetic manipulations of vectors prior to transfer into *Staphylococcus* species. This strain is also a *Dam* and *Dcm* methylase mutant for the transfer of plasmids into *Staphylococcus* isolates that do not accept *E. coli* DNA easily. Strain GM2163λpir has genotype F<sup>-</sup>*ara-14 leuB6 fhuA31 lacY1 tsx78 glnV44 galK2 galT22 mcrA dcm-6 hisG4 rfbD1 rpsL136 dam13::Tn9 xylA5 mtl-1 thi-1 mcrB1 hsdR2 λpir.<sup>1,2,3</sup>*

*E. coli* strains DH5αλpir and GM2163λpir were deposited in conjunction with vectors pKK22 and pKK30, and the complete set is available as BEI Resources NR-50352 (see Table 1 below for details). pKK22 and pKK30 were created to maintain stability in *E. coli* and *Staphylococcus* species without antibiotic selection during *in vitro* and *in vivo* experiments. The *E. coli* R6Kγ origin of replication of both vectors requires *pir*<sup>+</sup> for replication, which is provided in either DH5αλpir or GM2163λpir *E. coli* strains.<sup>3</sup>

**Note:** NR-50351 is part of a panel containing two vectors that remain stable during both *in vitro* and *in vivo* experiments without the requirement of antibiotics, and two *E. coli* hosts for genetic manipulations prior to transfer into *Staphylococcus* spp.

**Table 1: *E. coli* – *Staphylococcus* Vectors and Hosts**

Catalog Number	Description	Comments
NR-50348	<i>E. coli</i> , Strain DH5αλpir containing the vector pKK22	For use in <i>E. coli</i> , strains DH5αλpir or GM2163λpir or <i>S. aureus</i> USA300 strains containing LAC-p01 <sup>2</sup>
NR-50349	<i>E. coli</i> , Strain DH5αλpir containing the vector pKK30	pKK30 is a variant of pKK22, for use in <i>E. coli</i> , strains DH5αλpir or GM2163λpir or <i>Staphylococcus</i> species not containing LAC-p01 <sup>2</sup>
NR-50350	<i>E. coli</i> , Strain DH5αλpir	Host strain containing the <i>pir</i> gene for performing genetic manipulations prior to

		transfer into <i>Staphylococcus</i> sp. <sup>3</sup>
NR-50351	<i>E. coli</i> , Strain GM2163λpir	Host strain containing the <i>pir</i> gene for performing genetic manipulations. This strain is also a <i>dam</i> and <i>dcm</i> methylase mutant for the transfer of plasmids into <i>Staphylococcus</i> isolates that do not accept <i>E. coli</i> easily <sup>3</sup>

**Material Provided:**

Each vial of NR-50351 contains approximately 0.5 mL of *E. coli*, strain GM2163λpir, in Tryptic Soy broth containing 10 µg/mL trimethoprim supplemented with 10% glycerol.

**Packaging/Storage:**

NR-50351 was packaged aseptically in screw-capped plastic cryovials. The product is provided frozen and should be stored at -60°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:

Tryptic Soy broth or equivalent with or without 10 µg/mL trimethoprim

Tryptic Soy agar, Nutrient agar, Tryptic Soy agar with 5% defibrinated sheep blood or equivalent; with or without 10 µg/mL trimethoprim

Incubation:

Temperature: 37°C

Atmosphere: Aerobic

Propagation:

1. Keep vial frozen until ready for use, then thaw.
2. Transfer the entire thawed aliquot into a single tube of broth.
3. Use several drops of the suspension to inoculate an agar slant and/or plate.
4. Incubate the tube, slant and/or plate at 37°C for 1 day.

**Citation:**

Acknowledgment for publications should read “The following reagent was contributed by Dr. J. L. Bose for distribution by BEI Resources, NIAID, NIH: *Escherichia coli*, Strain GM2163λpir, NR-50351.”

**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.

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**References:**

1. Bose, J. L., Personal Communication.
2. Krute, C. N., et al. "Generation of a Stable Plasmid for *in vitro* and *in vivo* Studies of *Staphylococcus* Species." Appl. Environ. Microbiol. 82 (2016): 6859-6869. PubMed: 27637878.
3. Dunn, A. K., M. O. Martin and E. V. Stabb. "Characterization of pES213, A Small Mobilizable Plasmid from *Vibrio fischeri*." Plasmid 54 (2005): 114-134. PubMed: 16122560.

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