

***Streptococcus pyogenes*, Strain 11610
(Genotype *emm89*)**

Catalog No. NR-33706

For research use only. Not for human use.

Contributor:

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Manufacturer:

BEI Resources

Product Description:

Bacteria Classification: *Streptococcaceae*, *Streptococcus*

Species: *Streptococcus pyogenes*

Strain: 11610

Serotype: M89

Original Source: *Streptococcus pyogenes* (*S. pyogenes*), strain 11610 was isolated in 1997 from the throat of a patient with an uncomplicated pharyngitis infection in Umbria, Italy.¹

Comments: *S. pyogenes*, strain 11610 has been molecularly characterized as an *emm89*, Group A *Streptococcus* strain and is known to be susceptible to penicillin.¹

S. pyogenes is a non-motile, non-sporulating, Gram-positive, β-hemolytic coccus found in normal human nasopharyngeal flora and is one of the most frequent pathogens of humans. It is estimated that between 5-15% of normal individuals harbor *S. pyogenes* without signs of disease. Mild infections may present as pharyngitis (strep throat), scarlet fever (rash), impetigo (superficial skin) or cellulitis (deep skin). Invasive, toxigenic infections can result in necrotizing fasciitis, myositis and streptococcal toxic shock syndrome.²⁻⁶

Group A *Streptococcus* (GAS) strains are categorized by the nucleotide sequence of the *emm* (M protein) gene. One of the six most common *emm* types, *emm89*, is a frequent cause of pharyngitis.⁷

Material Provided:

Each vial contains approximately 0.5 mL of bacterial culture in Tryptic Soy broth supplemented with 10% glycerol.

Note: If homogeneity is required for your intended use, please purify prior to initiating work.

Packaging/Storage:

NR-33706 was packaged aseptically in 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 Todd-Hewitt broth or equivalent

Tryptic Soy agar or Tryptic Soy agar with 5% defibrinated sheep blood or Todd-Hewitt agar or equivalent

Incubation:

Temperature: 37°C

Atmosphere: Aerobic with 5% CO₂

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 obtained through BEI Resources, NIAID, NIH: *Streptococcus pyogenes*, Strain 11610 (Genotype *emm89*), NR-33706."

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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4. Beres, S. B., et al. "Genome Sequence of a Serotype M3 Strain of Group A *Streptococcus*: Phage-Encoded Toxins, the High-Virulence Phenotype, and Clone Emergence." Proc. Natl. Acad. Sci. USA 99 (2002): 10078-10083. PubMed: 12122206.
5. Davies, H. D., et al. "Invasive Group A Streptococcal Infections in Ontario, Canada. Ontario Group A Streptococcal Study Group." N. Engl. J. Med. 335 (1996): 547-554. PubMed: 8684408.
6. Olsen, R. J. and J. M. Musser. "Molecular Pathogenesis of Necrotizing Fasciitis." Annu. Rev. Pathol. 5 (2010): 1-31. PubMed: 19737105.
7. Shea, P. R., et al. "Group A *Streptococcus emm* Gene Types in Pharyngeal Isolates, Ontario, Canada, 2002 – 2010." Emerg. Infect. Dis. 17 (2011): 2010-2017. PubMed: 22099088.
8. Beres, S. B., et al. "Transcriptome Remodeling Contributes to Epidemic Disease Caused by the Human Pathogen *Streptococcus pyogenes*." mBio 7 (2016): e00403-16. PubMed: 27247229.

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