

***Bartonella henselae*, Strain Zeus**

Catalog No. NR-31835

For research use only. Not for human use.

Contributor:

Jane E. Koehler, M.D., Professor of Medicine, Department of Medicine, Division of Infectious Diseases, University of California, San Francisco, California, USA

Manufacturer:

BEI Resources

Product Description:

Bacteria Classification: *Bartonellaceae*, *Bartonella*

Species: *Bartonella henselae*

Strain: Zeus

Note: The strain designation on the vial label for lot 61660644 is incorrect. The correct strain designation is Zeus.

Original Source: *Bartonella henselae* (*B. henselae*), strain Zeus was isolated in March 1995 from the blood of a domestic house cat (*Felis catus*) in San Francisco, California, USA.¹

Comments: *B. henselae*, strain Zeus is part of a [Bartonella Group Database Sequencing Project](#) at the Broad Institute.² The complete genome for *B. henselae*, strain Zeus is available (GenBank: [AHPJ00000000](#)).

Bartonella spp. are fastidious, slow-growing, Gram-negative rods that are dependent on blood or hemin for growth. *Bartonella* exist in two niches – the gut of arthropod vectors and the bloodstream of the mammalian reservoir. They are incapable of living freely in the environment (with the exception of living in excreted feces from the arthropod vectors they reside in).³ *Bartonella* infection of the mammalian host occurs when the organisms gain entry through feces that is deposited at the site of an infected arthropod bite. The mammal then self-inoculates by scratching the bite. Well known human maladies that result from *Bartonella* spp. infection are Cat Scratch Disease (*B. henselae*, cat flea), Trench Fever (*B. quintana*, human body louse), and Carrion’s Disease (*B. bacilliformis*, sandfly). Host specificity has been observed for *Bartonella* spp. when both arthropod and mammalian hosts are known.⁴ Known virulence factors include a type IV secretion system, a family of hemin binding protein and outer membrane adhesions.^{5,6}

In addition to Cat Scratch Disease, *B. henselae* infections cause bacillary angiomatosis-peliosis in humans and are also associated with lymph-node disease and parenchymal peliosis of the liver and spleen.⁷

Material Provided:

Each vial contains approximately 0.5 mL of bacterial culture in Heart Infusion broth supplemented with 12.5% glycerol.

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

Packaging/Storage:

NR-31835 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:

Note: *B. henselae*, strain Zeus demonstrated poor growth in broth.

Media:

Heart Infusion broth or equivalent

Bartonella Chocolate agar or Tryptic Soy agar with 5% defibrinated sheep blood or equivalent

Incubation:

Temperature: 37°C

Atmosphere: Aerobic with 5% CO₂

Propagation:

1. Keep vial frozen until ready for use; thaw slowly.
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 7 to 8 days.

Citation:

Acknowledgment for publications should read “The following reagent was obtained through BEI Resources, NIAID, NIH: *Bartonella henselae*, Strain Zeus, NR-31835.”

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/bmb15/index.htm.

Disclaimers:

You are authorized to use this product for research use only. It is not intended for human use.

Use of this product is subject to the terms and conditions of the BEI Resources Material Transfer Agreement (MTA). The MTA is available on our Web site at www.beiresources.org.

While BEI Resources uses reasonable efforts to include accurate and up-to-date information on this product sheet, neither ATCC® nor the U.S. Government makes any warranties or representations as to its accuracy. Citations from scientific literature and patents are provided for informational purposes only. Neither ATCC® nor the U.S.

Government warrants that such information has been confirmed to be accurate.

This product is sent with the condition that you are responsible for its safe storage, handling, use and disposal. ATCC® and the U.S. Government are not liable for any damages or injuries arising from receipt and/or use of this product. While reasonable effort is made to ensure authenticity and reliability of materials on deposit, the U.S. Government, ATCC®, their suppliers and contributors to BEI Resources are not liable for damages arising from the misidentification or misrepresentation of products.

Use Restrictions:

This material is distributed for internal research, non-commercial purposes only. This material, its product or its derivatives may not be distributed to third parties. Except as performed under a U.S. Government contract, individuals contemplating commercial use of the material, its products or its derivatives must contact the contributor to determine if a license is required. U.S. Government contractors may need a license before first commercial sale.

References:

1. Koehler, J. E., Personal Communication.
2. Kirby, J. E., et al. "Characterization of Pathogenicity and Ecology of *Bartonella* Species Through Whole Genome Sequence Analysis." [Broad Institute](http://www.broadinstitute.org/annotation/genome/Bartonella_group/MultiHome.html). (2009) <http://www.broadinstitute.org/annotation/genome/Bartonella_group/MultiHome.html>
3. Brenner, D. J., et al. "Proposals to Unify the Genera *Bartonella* and *Rochalimaea*, with Descriptions of *Bartonella quintana* comb. nov., *Bartonella vinsonii* comb. nov., *Bartonella henselae* comb. nov., and *Bartonella elizabethae* comb. nov., and to Remove the Family *Bartonellaceae* from the order *Rickettsiales*." Int. J. Syst. Bacteriol. 43 (1993): 777-786. PubMed: 8240958.
4. Alsmark, C. M., et al. "The Louse-Borne Human Pathogen *Bartonella quintana* is a Genomic Derivative of the Zoonotic Agent *Bartonella henselae*." Proc. Natl. Acad. Sci. USA 101 (2004): 9716-9721. PubMed: 15210978.
5. Schroder, G. and C. Dehio. "Virulence-Associated Type IV Secretion Systems of *Bartonella*." Trends Microbiol. (13) 2005: 336-42. PubMed: 15935675.
6. Schmiederer, M. and B. Anderson. "Cloning, Sequencing, and Expression of Three *Bartonella henselae* Genes Homologous to the *Agrobacterium tumefaciens* VirB Region." DNA Cell Biol. (19) 2000: 141-147. PubMed: 10749166.
7. Koehler, J. E., et al. "Molecular Epidemiology of *Bartonella* Infections in Patients with Bacillary Angiomatosis-Peliosis." N. Engl. J. Med. 337 (1997): 1879-1883. PubMed: 9407154.

ATCC® is a trademark of the American Type Culture Collection.

