

***Ehrlichia chaffeensis*, Strain Liberty**

Catalog No. NR-46446

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Contributor:

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Manufacturer:

BEI Resources

Product Description:

Bacteria Classification: *Anaplasmataceae*, *Ehrlichia*

Species: *Ehrlichia chaffeensis*

Strain: Liberty

Original Source: *Ehrlichia chaffeensis* (*E. chaffeensis*), strain Liberty was isolated in 1998 from the blood of a patient in Florida, USA, with a suspected diagnosis of human monocytic ehrlichiosis (HME).^{1,2}

Comments: *E. chaffeensis*, strain Liberty, has shown greater disease severity in a mouse model than strain Arkansas, but less disease severity than strain Wakulla.³ The complete genome of *E. chaffeensis*, strain Liberty has been sequenced (GenBank: [CP007476](https://www.ncbi.nlm.nih.gov/nuclseq/CP007476)).

E. chaffeensis is a Gram-negative, obligate intracellular pathogen of eukaryotic cells and belongs to the alpha subdivision of Proteobacteria. It was originally classified in the family *Rickettsiaceae*, but subsequently reassigned to the family *Anaplasmataceae*, both families belonging to the order Rickettsiales.³ *E. chaffeensis* is transmitted to humans by the lone star tick (*Amblyomma americanum*) and is the causative agent of HME.

Material Provided:

Each vial contains approximately 1 mL of cell lysate and supernatant from *Canis familiaris* macrophage-monocyte cells infected with *E. chaffeensis*, strain Liberty, supplemented with fetal bovine serum and DMSO. The concentrations are shown on the Certificate of Analysis.

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

Packaging/Storage:

NR-46446 was packaged aseptically in screw-capped plastic cryovials and is provided frozen on dry ice. The product should be stored at -130°C or colder, preferably in the vapor phase of a liquid nitrogen freezer. If liquid nitrogen storage facilities are not available, frozen cryovials may be stored at -70°C or colder for approximately one week. Freeze-thaw cycles should be avoided.

Growth Conditions:

Host: *Canis familiaris* macrophage-monocyte cells (DH82; ATCC® CRL-10389™)

Growth Medium: Dulbecco's Modified Eagle's Medium containing 4 mM L-glutamine, 4500 mg per L glucose, 1 mM sodium pyruvate and 1500 mg per L sodium bicarbonate, supplemented with 5% to 10% fetal bovine serum, or equivalent; optionally, the growth medium may also be supplemented with cycloheximide and additional L-glutamine.

Infection: Cells should be 50% to 80% confluent

Incubation: 3 to 6 days at 37°C and 5% CO₂

Cytopathic Effect: Cell enlargement, rounding, detachment, granularity or other toxicity may or may not be observed. It is recommended that replication of *E. chaffeensis* be confirmed by PCR, IFA or staining of morulae with Diff-Quik (modified Giemsa stain).⁴

Citation:

Acknowledgment for publications should read "The following reagent was obtained through BEI Resources, NIAID, NIH: *Ehrlichia chaffeensis*, Strain Liberty, NR-46446."

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/bmbli5/index.htm.

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References:

1. Rikihisa, Y., Personal Communication.
2. Sumner, J. W., J. E. Childs and C. D. Paddock. "Molecular Cloning and Characterization of the *Ehrlichia chaffeensis* Variable-Length PCR Target: An Antigen-Expressing Gene that Exhibits Interstrain Variation." J. Clin. Microbiol. 37 (1999): 1447-1453. PubMed: 10203503.
3. Miura, K. and Y. Rikihisa. "Virulence Potential of *Ehrlichia chaffeensis* Strains of Distinct Genome Sequences." Infect. Immun. 75 (2007): 3604-3613. PubMed: 17438035.
4. Dumler, J. S., et al. "Reorganization of Genera in the Families *Rickettsiaceae* and *Anaplasmataceae* in the Order Rickettsiales: Unification of Some Species of *Ehrlichia* with *Anaplasma*, *Cowdria* with *Ehrlichia* and *Ehrlichia* with *Neorickettsia*, Descriptions of Six New Species Combinations and Designation of *Ehrlichia equi* and 'HGE agent' as Subjective Synonyms of *Ehrlichia phagocytophila*." Int. J. Syst. Evol. Microbiol. 51 (2001): 2145-2165. PubMed: 11760958.
5. Chen, S-M., et al. "Cultivation of *Ehrlichia chaffeensis* in Mouse Embryo, Vero, BGM, and L929 Cells and Study of *Ehrlichia*-Induced Cytopathic Effect and Plaque Formation." Infect. Immun. 63 (1995): 647-655. PubMed: 7822034.
6. Childs, J. E., et al. "Outcome of Diagnostic Tests Using Samples from Patients with Culture-Proven Human Monocytic Ehrlichiosis: Implications for Surveillance." J. Clin. Microbiol. 37 (1999): 2997-3000. PubMed: 10449489.

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