

## Serratia sp., Strain Ag2

### Catalog No. NR-50123

### For research use only. Not for human use.

#### Contributor:

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#### Manufacturer:

BEI Resources

#### Product Description:

Bacteria Classification: *Enterobacteriaceae*, *Serratia*

Genus: Deposited as *Serratia* sp. [NR-50123 aligns favorably with the depositors' sequence, however, this organism did not align favorably with other members of the *Serratia* genus. Digital DNA-DNA hybridization (dDDH) analysis of the sequence was also inconclusive.]

Strain: Ag2

Original Source: *Serratia* sp., strain Ag2 was isolated in 2014 from the midgut of *Anopheles gambiae*, strain G3, a lab strain used for malaria research, in Las Cruces, New Mexico, USA.<sup>1,2</sup>

Comments: The complete genome of *Serratia* sp., strain Ag2 is available (GenBank: [JQEZ000000000](https://www.ncbi.nlm.nih.gov/nuccore/JQEZ000000000)).

*Serratia* species are Gram-negative, rod-shaped facultative anaerobes that exhibit swarming motility. *Serratia* sp. are ubiquitous in water, soil and plant surfaces and are also found in the guts of vertebrates and invertebrates.<sup>2-4</sup> *Serratia marcescens* (*S. marcescens*), *S. plymuthica* and *S. rubidae*, produce prodigiosin, a characteristic non-diffusible, water-insoluble red pigment.<sup>3,4</sup> These opportunistic pathogens are a rising cause of nosocomial infections in immunocompromised patients, mainly due to the formation of biofilms on catheters, other medical devices, and on contact lenses.<sup>3-5</sup> Infection by *Serratia* is complicated by an inherent resistance to  $\beta$ -lactam antibiotics, attributed to the naturally occurring expression of the AmpC gene.<sup>4,5</sup> Intrinsic resistance to macrolides (linezolid, glycopeptides, quinopristin-dalfopristin, rifampin and nitrofurantoin) has also been observed.<sup>4</sup> Anti-malarial properties of *Serratia* species present in the mid-gut lumen of *Anopheles* mosquitoes have been reported.<sup>5</sup>

#### Material Provided:

Each vial contains approximately 0.5 mL of bacterial culture in Brain Heart Infusion broth supplemented with 25% glycerol.

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

#### Packaging/Storage:

NR-50123 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 Nutrient broth or Brain Heart Infusion broth or equivalent

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

##### Incubation:

Temperature: 26°C to 30°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 obtained through BEI Resources, NIAID, NIH: *Serratia* sp., Strain Ag2, NR-50123."

#### 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](http://www.cdc.gov/biosafety/publications/bmbl5/index.htm).

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#### References:

1. Xu, J., Personal Communication.
2. Pei, D., et al. "Draft Genome Sequences of Two Strains of *Serratia* spp. from the Midgut of the Malaria Mosquito *Anopheles gambiae*." Genome Announc. 3 (2015): e00090-15. PubMed: 25767231.
3. Grimont, F. and P. A. D. Grimont. "The Genus *Serratia*." In: M. Dworkin, S. Falkow, E. Rosenberg, K. H. Schleifer and E. Stackebrandt (Eds.), The Prokaryotes: Handbook on the Biology of Bacteria. (Vol. 3) New York: Springer-Verlag, 2006. 219-244.
4. Mahlen, S. D. "*Serratia* Infections: From Military Experiments to Current Practice." Clin. Microbiol. Rev. 24 (2011): 755-791. PubMed: 21976608.
5. Stock, I., et al. "Natural Antimicrobial Susceptibilities of Strains of 'Unusual' *Serratia* Species: *S. ficaria*, *S. fonticola*, *S. odorifera*, *S. plymuthica* and *S. rubidaea*." J. Antimicrob. Chemother. 51 (2003): 865-885. PubMed: 12654765.
6. Bando, H., et al. "Intra-Specific Diversity of *Serratia marcescens* in *Anopheles* Mosquito Midgut Defines *Plasmodium* Transmission Capacity." Sci. Rep. 3 (2013): 1641. PubMed: 23571408.
7. Grimont, P. A. and F. Grimont. "The Genus *Serratia*." Annu. Rev. Microbiol. 32 (1978): 221-248. PubMed: 360966.

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