

Product Data Sheet

Product Name: Petrobactin

Cat. No.: GC79572

Chemical Properties

Cas. No. 545434-89-7

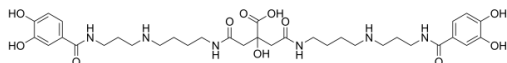
Formula $C_{34}H_{50}N_6O_{11}$ M.Wt 718.79

Solubility DMSO: 100 mg/mL (139.12 mM; Need ultrasonic) Storage Store at -20°C

General tips For obtaining a higher solubility, please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution: ship with blue ice. All other available size: ship with RT, or blue ice upon request.

Structure



Background

Petrobactin is a bis-catechol α -hydroxy acid siderophore, Fe (III) chelator, and oxidative stress protector. Petrobactin is produced by marine bacteria and *Bacillus anthracis* Sterne strain under iron-

Caution: Product has not been fully validated for medical applications. For research use only.

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA

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starvation conditions. Petrobactin promotes the biodegradation of petroleum hydrocarbons by microorganisms, as well as the proliferation, virulence exertion, vegetative growth, sporulation efficiency, and spore binding of *Bacillus anthracis*; it also mediates community iron acquisition in the global ocean. Petrobactin can be used in anthrax-related research [1] [2] [3] [4].

In Vitro, Petrobactin (25 μ M; 12 h) restores efficient 12-h sporulation of *Bacillus anthracis* Sterne asb mutant strain in ModG medium to wild-type levels ($\geq 10^7$ CFU/mL spores), while the asb mutant shows delayed but full sporulation by 36 h without supplementation^[3]. Petrobactin (25 μ M; 24 h) restores 24-h growth and spore counts of *Bacillus anthracis* Sterne asb mutant strain in bovine blood to wild-type levels ($\approx 10^8$ CFU/mL total, $\approx 10^7$ CFU/mL spores), though it only partially improves 72-h sporulation percentage^[3]. Petrobactin (25 μ M; 8 h) restores oxidative stress survival of 8-h-grown *Bacillus anthracis* Sterne asb mutant strain in ModG medium to wild-type levels (≈ 45 -50% survival following 10 mM H₂O₂ exposure)^[3].

References:

- [1]. Barbeau K, et al. Petrobactin, a photoreactive siderophore produced by the oil-degrading marine bacterium *Marinobacter hydrocarbonoclasticus*. *Journal of the American Chemical Society*. 2002 Jan 23;124(3):378-9.
- [2]. Koppisch AT, et al. Petrobactin is the primary siderophore synthesized by *Bacillus anthracis* str. Sterne under conditions of iron starvation. *Biometals: an international journal on the role of metal ions in biology, biochemistry, and medicine*. 2005 Dec;18(6):577-85.
- [3]. Hagan AK, et al. Petrobactin Protects against Oxidative Stress and Enhances Sporulation Efficiency in *Bacillus anthracis* Sterne. *mBio*. 2018 Nov 06;9(6):e02079-18.
- [4]. Manck LE, et al. Petrobactin, a siderophore produced by *Alteromonas*, mediates community iron acquisition in the global ocean. *The ISME journal*. 2022 Feb;16(2):358-369.

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