

Product Name:	Novobiocin sodium
Product Number:	N014
CAS Number:	1476-53-5
Molecular Formula:	C ₃₁ H ₃₅ N ₂ NaO ₁₁
Molecular Weight:	634.61
Form:	Powder
Appearance:	White or yellow powder
Solubility:	Water: Freely soluble
Source:	Synthetic
Water Content (Karl Fischer):	≥6.0%
Potency (on a dry basis):	≥850µg/mg
pH:	6.5-8.5
Melting Point:	215-220°C
Storage Conditions:	2-8 °C
Description:	Novobiocin sodium is an aminocoumarin antibiotic that prevents cell division. Novobiocin sodium is freely soluble in aqueous solution.
Mechanism of Action:	Aminocoumarin antibiotics target DNA gyrase, an enzyme which relieves strain as DNA unwinds during replication and transcription.
Spectrum:	Novobiocin sodium targets primarily gram positive organisms and is commonly used to differentiate between coagulase negative (all but <i>S. aureus</i> and a few others) <i>Staphylococcus</i> species. <i>S. saprophyticus</i> is resistant to novobiocin.
Microbiology Applications	Novobiocin sodium is commonly used in clinical <i>in vitro</i> microbiological antimicrobial susceptibility tests (panels, discs, and MIC strips) against gram positive microbial isolates. Medical microbiologists use AST results to recommend antibiotic treatment options for infected patients. Representative MIC values include: <ul style="list-style-type: none"> • <i>Staphylococcus aureus</i> 0.25 µg/mL • <i>Staphylococcus saprophyticus</i> 2 µg/mL • For a complete list of novobiocin MIC values, click here.

Plant Biology Applications

Novobiocin can be used in combination with gentamicin to prevent and cure *Bacillus* contamination in plant tissue culture. Benjama et al. demonstrated the potency of this combination in contaminated Date Palm tissue which led to routine use in plant science applications.

References:

Brown, Patrick O., and Craig L. Peebles. "Energy Coupling in DNA Gyrase and the Mechanism of Action of Novobiocin." *PNAS* 75.2 (1978): 4838-842. Web. 21 Aug. 2012.

Benjama and Charkaoui, 1997, Control of *Bacillus* contaminating Date palm tissue in micro- propagation using antibiotics. Pathogen and microbial contamination management in micro- propagation. Kluwer academic publishers.

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