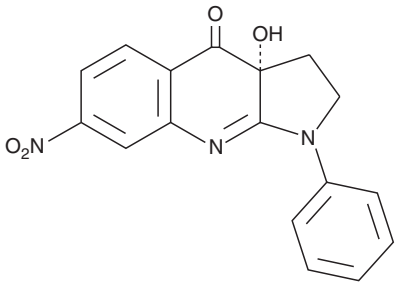
PRODUCT INFORMATION

(R)-nitro-Blebbistatin

Item No. 9001935

CAS Registry No.: 1217619-62-9
Formal Name: (3aR)-1,2,3,3a-tetrahydro-3a-hydroxy-7-nitro-1-phenyl-4H-pyrrolo[2,3-b]quinolin-4-one
Synonym: R-(-)-7-Desmethyl-8-nitro Blebbistatin
MF: $C_{17}H_{13}N_3O_4$
FW: 323.3
Purity: ≥98%
UV/Vis.: λ_{max}: 234, 270, 315, 350, 443 nm
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥2 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

(R)-nitro-Blebbistatin is supplied as a crystalline solid. A stock solution may be made by dissolving the (R)-nitro-blebbistatin in the solvent of choice. (R)-nitro-Blebbistatin is soluble in organic solvents such as DMSO and dimethyl formamide (DMF), which should be purged with an inert gas. The solubility of (R)-nitro-blebbistatin in these solvents is approximately 25 and 20 mg/ml, respectively.

(R)-nitro-Blebbistatin is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, (R)-nitro-blebbistatin should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. (R)-nitro-Blebbistatin has a solubility of approximately 0.5 mg/ml in a 1:1 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

(R)-nitro-Blebbistatin is a more stable form of (+)-blebbistatin (Item No. 13165), which is the inactive form of (–)-blebbistatin (Item No. 13013). Prolonged exposure to blue light (450-490 nm) results in degradation of blebbistatin to an inactive product *via* cytotoxic intermediates, which may be problematic for its use in fluorescent live cell imaging applications.[1,2] The addition of a nitro group stabilizes the molecule to circumvent its degradation by prolonged blue light exposure.[3] (R)-nitro-Blebbistatin has the same stereochemistry as the inactive (+)-blebbistatin enantiomer.

References

1. Kolega, J. Phototoxicity and photoinactivation of blebbistatin in UV and visible light. *Biochem. Biophys. Res. Commun.* **320(3)**, 1020-1025 (2004).
2. Sakamoto, T., Limouze, J., Combs, C.A., *et al.* Blebbistatin, a myosin II inhibitor, is photoinactivated by blue light. *Biochemistry* **44(2)**, 584-588 (2005).
3. Lucas-Lopez, C., Patterson, S., Blum, T., *et al.* Absolute stereochemical assignment and fluorescence tuning of the small molecule tool, (-)-blebbistatin. *European J. Org. Chem.* **2005(9)**, 1736-1740 (2005).

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