Blasticidin S HCl

Introduction

Blasticidin S is an aminoacylnucleoside antibiotic originally discovered in *Streptomyces griseochromogenes*. It exhibits strong cytotoxic effects against both eukaryotic and prokaryotic systems, making it a powerful antimicrobial agent. Beyond its primary antibacterial and antifungal applications, blasticidin has also been reported to interfere with viral replication and suppress tumor cell proliferation, further expanding its utility as a research tool. Due to its broad-spectrum activity, it is frequently used as a selectable marker in cell biology. It efficiently selects for transformed cells harboring the bls, bsr, or BSD resistance genes.

The mechanism of blasticidin S involves direct inhibition of peptide bond formation during translation. By binding to the ribosomal large subunit, it stabilizes tRNA interaction and prevents the hydrolysis of peptidyl-tRNA, ultimately halting protein synthesis and inducing cell death. To establish optimal working conditions, it is suggested to perform a kill curve to identify the minimum concentration required to eliminate non-resistant cells.

Storage

Store desiccated at -20°C, stable for 3 years.

Protocol

1. **Preparation of G418 stock solution**: Dissolve 10 mg Blasticidin S per 1 mL of sterile H_2O (or other suitable buffer) to make a 10 mg/mL stock solution. Then sterilize the stock solution with a 0.22 µm syringe filter. Aliquot and store the sterilized stock solution at -20°C, stable for 9 months.

2. **Recommended working concentration**: In a new experiment, it is suggested to obtain optimal concentrations by a kill curve. Recommended working concentrations for selection are listed below.

   1) For mammalian cell selection: 2–10 µg/mL.

   2) For *E. coli* selection: 50-100 µg/mL.

   3) For Yeast selection: 25-300 µg/mL.

*Note:** The optimal concentration depends on the cell type.

Note

1. For your safety and health, please wear lab coats and gloves during the experiment.

2. For research use only. Not to be used in clinical diagnostic or clinical trials.