G-418 Sulfate

CAS N°: 108321-42-2

Molecular weight: 692.7 g/mol

Chemical formula: $C_{20}H_{40}N_4O_{10}.2H_2SO_4$

Synonym: Geneticin Disulfate

Colour: White to white with a faint yellow cast powder

Odour : Odourless powder

Storage conditions: +2°C to +8°C

Shelf life: 36 months

Solubility and solution stability:
The G 418 Sulfate is soluble in water at 50 mg/ml which yields a clear to very lightly hazy colorless solution. Aquaous solutions stored frozen at –20°C to –70°C should be stable for approximately 6 months (8 days at 37°C).

Recommended use:
Recommended for use in selection applications at 100-800 µg/ml
Typically a stock solution of 10-50mg/ml active drug is prepared in a highly buffered solution (e.g. 100mM HEPES, pH 7.3, or cell culture medium).
- Respect storage conditions of the product
- Do not use the product after its expiry date
- Store the product in a dry area
- Wear clothes adapted to the manipulation of the product to avoid contamination (e.g.: gloves, mask, hygiene cap, overall…)
- Protect the product from any form of humidity
- Use, in one time, after opening, the entire quantity of product of the container, without making a concentrated solution (to avoid the formation of precipitates). If it is not possible, close the container immediately after sampling the quantity of powder required.

The product is intended to be used in vitro for research or further manufacturing only and not for use as an Active Pharmaceutical Ingredient or food or animal feed.

Application:
For use in the selection and maintenance of eucaryotic cells stably transfected with neomycin resistance genes.
G418 is an aminoglycoside antibiotic similar in structure to gentamycin. It exhibits toxicity towards both eukaryotic and prokaryotic cells. The optimal concentration for selection and maintenance must be determined for each cell line. For bacteria and algae concentrations, 5µg/ml or less are recommended. Animal cells may require up to 300-500µg/ml.

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Typically, resistance is conferred by one of two dominant genes of bacterial origin which can be expressed in eukaryotic cells. Cells that are multiplying will be effected sooner than those that are not. Cells in log phase may require three to seven days for selection. In general, concentrations of approximately 400µg/ml for selection and 200µg/ml for maintenance are required for mammalian cells.

Mode of Action:
Blocks polypeptide synthesis and inhibits chain elongation

References:

1. Biological activity: *Antimicrob. Ag. and Chemomether*., 6, 579 (1974)
2. Antiparasitic activity: *Antimicrob. Ag. and Chemomether*., 7, 811 (1975)
3. Known resistance factors and inhibition of plant cells: *Biochem. Biophys. Res. Commun*., 101, 1031 (1981).
4. Dominant hybrid selective marker for higher eukaryotic cells: *J. Mol. Biol*., 150, 1 (1981).
5. Expression of a transposable antibiotic resistance element in Saccharomyces: *Nature*, 287, 869 (1980).
6. DNA-mediated transformation system of Dictyostelium discoideum which leads to geneticin resistance: *Proc. Nat. Acad. Sci*. (USA), 79, 7356 (1982).

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