Ganciclovir
Prodrug for the HSV-tk/GCV selection system
Catalog code: sud-gcv
https://www.invivogen.com/ganciclovir

For research use only. Not for human use.
Version 20102-MM

PRODUCT INFORMATION
Contents
250 mg of Ganciclovir (GCV)
Storage and stability
- Ganciclovir (GCV) is shipped at room temperature. Upon receipt, store at -20°C.
- Upon resuspension, aliquots of GCV are stable for 1 month at 4°C and for 6 months at -20°C when properly stored. Do not re-freeze.
Quality control
- Purity ≥95% (UHPLC)
- The absence of bacterial contamination (e.g., lipoproteins and endotoxins) has been confirmed using HEK-Blue™ TLR2 and HEK Blue™ TLR4 cells.

SAFETY CONSIDERATIONS
Ganciclovir exhibits reproducitve toxicity. Refer to the safety data sheet for handling instructions.

DESCRIPTION
The produrg Ganciclovir (GCV), a guanosine analog, is commonly used in molecular biology together with the negative selection marker herpes virus thymidine kinase (HSV-tk) gene. Numerous publications have cited its use in the selection against random recombination events when homologous recombination for the knockin or knockout of a gene is required. In addition, reports have described the use of GCV in the selective removal of undifferentiated cells during in vitro differentiation of embryonic stem cells.
Specifically, GCV is used to exert selective pressure on cells transfected with the “cell suicide gene” HSV-tk. Normally, eukaryotic cells can survive in the presence of the non-toxic prodrug GCV. However, upon expression of HSV-tk, GCV is converted to GCV-monophosphate by HSV1-TK and further phosphorylated to the diphosphate and triphosphate forms by host kinases. GCV-triphosphate, a lethal toxin, is incorporated into the DNA of replicating eukaryotic cells causing premature DNA chain termination and apoptosis.

METHOD
Reconstitution of Ganciclovir (GCV):
1. Add 20 ml of distilled water and adjust to pH 12 with NaOH 1M.
2. Lower pH to 11 with HCl 1M then add water to bring the total volume to 25 ml of GCV solution (10 mg/ml).
3. Sterile filter the solution using a 0.22 µm sterile filter.
4. Prepare 1 ml aliquots of GCV and store at 4°C or at -20°C.
5. Thaw frozen aliquots only once (do not re-freeze).

Cytotoxicity assay:
1. Seed cells at a density of 1 x 10^5 cells/well in a 96-well plate containing 100 µl of culture medium.
2. Prepare sterile stock dilutions of the 10 mg/ml GCV solution.
3. Following an overnight incubation, add increasing concentrations of GCV to the wells.
4. After 5-7 days, wash cells with fresh medium and assess cytotoxicity using the method of your choice such as the trypan blue dye exclusion assay.

RELATED PRODUCTS

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<td>DNA Synthesis Inhibitor</td>
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<tr>
<td>5-Fluorouracil</td>
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<td>pSELECT-zeo-HSV1tk</td>
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