

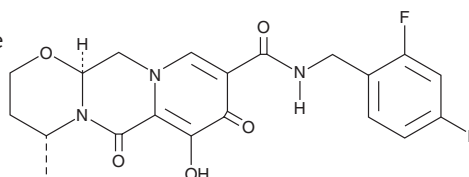
# PRODUCT INFORMATION



## Dolutegravir Item No. 22191

**CAS Registry No.:** 1051375-16-6  
**Formal Name:** (4R,12aS)-N-[(2,4-difluorophenyl)methyl]-3,4,6,8,12,12a-hexahydro-7-hydroxy-4-methyl-6,8-dioxo-2H-pyrido[1',2':4,5]pyrazino[2,1-b][1,3]oxazine-9-carboxamide  
**Synonyms:** GSK1349572, S/GSK1349572

**MF:** C<sub>20</sub>H<sub>19</sub>F<sub>2</sub>N<sub>3</sub>O<sub>5</sub>  
**FW:** 419.4  
**Purity:** ≥98%  
**UV/Vis.:** λ<sub>max</sub>: 259 nm  
**Supplied as:** A crystalline solid  
**Storage:** -20°C  
**Stability:** ≥4 years



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

### Laboratory Procedures

Dolutegravir is supplied as a crystalline solid. A stock solution may be made by dissolving the dolutegravir in the solvent of choice, which should be purged with an inert gas. Dolutegravir is soluble in organic solvents such as DMSO and dimethyl formamide (DMF). Dolutegravir has a solubility of 2.5 and 5 mg/ml in DMSO and DMF, respectively. Dolutegravir is also slightly soluble in ethanol.

Dolutegravir is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, dolutegravir should first be dissolved in DMF and then diluted with the aqueous buffer of choice. Dolutegravir has a solubility of approximately 0.20 mg/ml in a 1:4 solution of DMF:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

### Description

Dolutegravir is a potent inhibitor of HIV integrase with an IC<sub>50</sub> value of 2.7 nM for HIV-1 integrase-catalyzed strand transfer *in vitro*.<sup>1</sup> It inhibits HIV-1 viral replication (EC<sub>50</sub> = 0.51 nM) in peripheral blood mononuclear cells (PBMCs). The cytotoxic concentration (CC<sub>50</sub>) values for dolutegravir in unstimulated and stimulated PBMCs are 189 and 52 μM, respectively, resulting in a therapeutic index of at least 9,400. It prevents replication of several HIV-1 strains (EC<sub>50</sub>s = 0.36-2.1 nM) that are resistant to nucleoside reverse transcriptase inhibitors (NRTIs), non-nucleoside reverse transcriptase inhibitors (NNRTIs), and protease inhibitors and impairs their ability to infect CIP4 cells.<sup>1,2</sup> Formulations containing dolutegravir have been used to treat HIV-1 infection in humans.<sup>3</sup>

### References

1. Kobayashi, M., Yoshinaga, T., Seki, T., *et al.* *In vitro* antiretroviral properties of S/GSK1349572, a next-generation HIV integrase inhibitor. *Antimicrob. Agents and Chemother.* **55**(2), 813-821 (2011).
2. Hare, S.A., Smith, S.J., Métifiot, M., *et al.* Structural and functional analyses of the second-generation integrase strand transfer inhibitor dolutegravir (S/GSK1349572). *Mol. Pharmacol.* **80**(4), 565-572 (2011).
3. Venter, W.D.F., Clayden, P., and Serenata, C. The ADVANCE study: A groundbreaking trial to evaluate a candidate universal antiretroviral regimen. *Curr. Opin. HIV AIDS* **12**(4), 351-354 (2017).

#### WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

#### SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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