Zidovudine PK Fact Sheet

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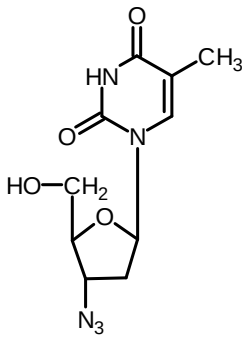
Details

Generic Name	Zidovudine (AZT, ZDV)
Trade Name	Retrovir®
Class	Nucleoside Reverse Transcriptase Inhibitor
Molecular Weight	267.24
Structure	

Summary of Key Pharmacokinetic Parameters

Zidovudine is phosphorylated in both infected and uninfected cells to the monophosphate and subsequently to the diphosphate, and then the active triphosphate form.

Linearity/non-linearity	Pharmacokinetics of zidovudine were dose independent at oral dosing regimens ranging from 2 mg/kg every 8 hours to 10 mg/kg every 4 hours.
Plasma half life	1.1 h
Cmax	2.29 µg/ml (300 mg twice daily)
Cmin	0.02 µg/ml (300 mg twice daily)
AUC	2.24 µg/ml.hr (300 mg twice daily)
Bioavailability	60-70%
Absorption	Zidovudine may be administered with or without food. Zidovudine AUC was similar when a single dose of zidovudine was administered with food.
Protein Binding	34-38%
Volume of Distribution	1.6 L/kg
CSF:Plasma ratio	0.5
Semen:Plasma ratio	5.9 (0.95-13.5) [1]
Renal Clearance	Greatly exceeds creatinine clearance, indicating that significant tubular secretion takes place.
Renal Impairment	In patients with severe renal impairment, apparent zidovudine clearance after oral administration was approx 50% of that reported in subjects with normal renal function.
Hepatic Impairment	Data in patients with cirrhosis suggest that accumulation of zidovudine may occur in patients with hepatic impairment due to decreased glucuronidation.

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Metabolism and Distribution

Metabolised by	Hepatic conjugation to an inactive glucuronidated metabolite. No P450 involvement.
Inducer of	N/A
Inhibitor of	BCRP(*in vitro*) [2]
Transported by	BCRP1 [3]

References

Unless otherwise stated (see below), information is from:
Retrovir® Summary of Product Characteristics, Viiv Healthcare UK Ltd.
Retrovir® US Prescribing Information, ViiV Healthcare.

1. Pereira AS, Kashuba AD, Fiscus SA, *et al*. Nucleoside analogues achieve high concentrations in seminal plasma: relationship between drug concentration and virus burden. *J Infect Dis.* 1999; 180(6): 2039-2043.
2. Weiss J, Rose J, Storch CH, *et al.* Modulation of human BCRP (ABCG2) activity by anti-HIV drugs. *J Antimicrob Chemother.* 2007; 59(2): 238-245.
3. Pan G, Giri N, Elmquist W. Abcg2/Bcrp1 mediates the polarized transport of antiretroviral nucleosides abacavir and zidovudine. *Drug Metab Dispos. 2007; 35(7): 1165-1173.*

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