Tenofovir Alafenamide PK Fact Sheet

Details

**Generic Name**  
Tenofovir alafenamide fumarate (TAF)

**Trade Name**  
Vemlidy® (for hepatitis B)

**Class**  
Nucleoside/nucleotide Reverse Transcription Inhibitor

**Molecular Weight**  
534.5

**Structure**

![Structure of Tenofovir Alafenamide](image)

**Summary of Key Pharmacokinetic Parameters**

Tenofovir alafenamide is a phosphonomidate prodrug of tenofovir and is primarily hydrolyzed to form tenofovir. Intracellular tenofovir is subsequently phosphorylated to the pharmacologically active metabolite tenofovir diphosphate.

**Linearity/non-linearity**  
Tenofovir alafenamide exposures are dose proportional over the dose range of 8 to 125 mg.

**Steady state**  
Not reported

**Plasma half-life**  
TAF 0.51 h; tenofovir 32.37 h (median).

**Cmax**  
TAF 0.27 (63.3) µg/ml; tenofovir 0.03 (24.6) µg/ml (mean, CV%), from multiple dose administration in subjects with chronic hepatitis B.

**Ctough**  
TAF not applicable; tenofovir 0.01 (39.6) µg/ml (mean, CV%), from multiple dose administration in subjects with chronic hepatitis B.

**AUC**  
TAF 0.27 (47.8) µg∙h/ml; tenofovir 0.40 (35.2) µg∙h/ml (mean, CV%), from multiple dose administration in subjects with chronic hepatitis B.

**Bioavailability**  
Not reported

**Absorption**  
Relative to fasting conditions, the administration of a single dose of Vemlidy with a high fat meal resulted in a 65% increase in tenofovir alafenamide exposure.

**Protein Binding**  
TAF ~80%; tenofovir <0.7%

**Volume of Distribution**  
Not reported

**CSF:Plasma ratio**  
Not reported

**Semen:Plasma ratio**  
Not reported

**Renal Clearance**  
TAF - <1% renally excreted unchanged  
Tenofovir - renally eliminated by glomerular filtration and active tubular secretion

**Renal Impairment**  
No dose adjustment is required in patients with CrCl ≥15 mL/min or in patients with CrCl <15 mL/min who are receiving haemodialysis (on haemodialysis days, Vemlidy should be administered after completion of haemodialysis treatment). No dosing recommendations can be given for patients with CrCl <15 mL/min who are not receiving haemodialysis.

**Hepatic Impairment**  
No dosage adjustment is required in patients with mild hepatic impairment (Child-Pugh A). Vemlidy is not recommended in patients with decompensated (Child-Pugh B or C) hepatic impairment.
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## Metabolism and Distribution

<table>
<thead>
<tr>
<th>Metabolised by</th>
<th>Carboxylesterase-1, cathepsin A, CYP3A (minimal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inducer of</td>
<td>None expected. Does not induce CYP3A in vivo.</td>
</tr>
<tr>
<td>Inhibitor of</td>
<td>None expected. Does not inhibit CYP3A in vivo. Does not inhibit CYP1A2, CYP2B6, CYP2C8, CYP2C9, CYP2C19, CYP2D6 or UGT1A1 in vitro</td>
</tr>
<tr>
<td>Transported by</td>
<td>P-gp, BCRP, OATP1B1, OATP1B3,</td>
</tr>
</tbody>
</table>

## References

*Unless otherwise stated (see below), information is from:*

Vemlidy ® Summary of Product Characteristics, Gilead Sciences Ltd.

Vemlidy ® Prescribing Information, Gilead Sciences Inc.