

Amikacin

General	
• Class of the drug:	Aminoglycoside antibiotics
• Synonym(s):	-
• Common trade name(s) in Switzerland:	Amikin®
• Conversion factors:	mg/l x 1.71 = µmol/l µmol/l x 0.58 = mg/l
Clinical pharmacology	
• Indications for TDM:	Individual dose adaptation, suspicion of toxicity, side effects
• Protein binding:	4 - 11% (serum albumin)
• Elimination half-life:	1 - 4 h neonates/ infants: 3 - 8 h (see remarks)
• Volume of distribution:	0.3 – 0.4 l/kg
• Metabolism:	
- Main metabolic pathways:	No metabolism
- Active metabolite(s)?	None
- Inhibitor or inducer of the cytochrome P450 system?	No
- Other significant pharmacokinetic interactions:	None
• Elimination of parent drug:	Renal 100%
• Typical therapeutic range:	<u>Multiple dosing:</u> Peak concentration: 20 – 30 mg/l (34 – 51 µmol/l) Trough concentration: ≤ 7 mg/l (≤ 12 µmol/l) <u>Once-daily dosing:</u> Trough concentration: ≤ 1.5 mg/l (≤ 2.6 µmol/l)
• Potentially toxic concentration:	<u>Multiple dosing:</u> Peak concentration: > 35 mg/l (> 60 µmol/l) Trough concentration: >10 mg/l (>17 µmol/l) <u>Once-daily dosing:</u> Trough concentration: > 1.5 mg/l (> 2.6 µmol/l)
Pre-analytics	
• Time to steady-state since beginning of treatment or change of posology:	Steady-state is generally achieved after 3 doses for multiple dosing

• Time for blood sampling:	Peak: one hour after beginning of infusion Trough: within 30 minutes of next dose Once-daily dosing: trough level only
• Type(s) of sample:	Serum or plasma
• Stability:	1 week at 4°C When combined therapy with penicillines and/or cephalosporines: in vitro inactivation →freeze sample
Analytcs	
• Position(s) in the analysis list/Method:	8628.01 Immunological
Remarks	<ul style="list-style-type: none"> • Elimination is strongly dependent on renal function • Avoid gel tubes if possible, unless having confirmed that no binding occurs
References	<ul style="list-style-type: none"> • <i>Grundlagen der Arzneimitteltherapie Ausgabe 2005, Documed</i> • <i>Arzneimittel Kompendium der Schweiz, Documed, 2005</i> • <i>Thomson Micromedex® Healthcare series</i> • <i>Taylor and Diers, Abbott: A textbook for the clinical application of therapeutic drug monitoring 1986</i> • <i>Begg et al., Br J clin Pharm 39 (1995) 597</i> • <i>Touw et al., Ther Drug Monit 27 (2005) 10</i> • <i>Schultz et al., Pharmazie 58 (2003) 447</i>