Digoxin

General	
• Class of the drug:	Cardiac glycosides
• Synonym(s):	
• Common trade name(s) in Switzerland:	Digoxin-Sandoz®, Digoxin-Streuli®
• Conversion factors:	*µg/l x 1.28 = nmol/l* *nmol/l x 0.781 = µg/l*
Clinical pharmacology	
• Indications for TDM:	Individual dose adaptation, verification of compliance, side effects, suspicion of toxicity
• Protein binding:	20-30% (albumin)
• Elimination half-life:	40 h
• Volume of distribution:	5-7 l/kg
• Metabolism:	
- Main metabolic pathways:	Sequential cleavage of sugar molecules and reduction followed by conjugations
- Active metabolite(s)?	Digoxigenin and dihydrodigoxin have some cardiac effects (not clinically relevant)
- Inhibitor or inducer of the cytochrome P450 system?	No
- Other significant pharmacokinetic interactions:	Antacids inhibit absorption of oral digoxin from the GI tract. Quinidine decreases clearance and volume of distribution; amiodarone, verapamil, propafenone reduce digoxin clearance. Interferences with the transport protein P-gp can affect digoxin levels (e.g. St. John's Worth).
• Elimination of parent drug:	Hepatic: 5-20% Renal: 60-80%
• Typical therapeutic range:	0.8–2 µg/l (1.0–2.6 nmol/l)
• Potentially toxic concentration:	>2.5 µg/l (>3.2 nmol/l)
Pre-analytics	
• Time to steady-state since beginning of treatment or change of posology:	1 week
• Time for blood sampling:	Before next dose at steady state or at least 6-8 hours after the last dose
• Type(s) of sample:	Serum or plasma

• Stability:	1 week at 4°C
Analytics	
• Position(s) in the analysis list/Method:	8188.00 all methods
Remarks	Digoxin-like immunoreactive factors (DLIFs) may result in falsely elevated digoxin levels with immunoassays. New trend: lower therapeutic range (0.4 – 0.7 nmol/l; 0.5 – 0.9 µg/l)
References	• *Wettrell et al., Ther. Drug. Monit. 8 (1986) 129* • *Mooradian. Clin. Pharmacokin. 15 (1988) 165* • *Matzuk et al., Ther. Drug Monit. 13 (1991) 215* • *Dobbs et al., Clin. Pharmacokinet. 20 (1991) 175* • *Valdes et al., Clin. Chem. 44 (1998) 1096* • *Ahmed et al., Eur Heart J 27 (2006) 178*