Methotrexate

General	
• Class of the drug:	Cytostatics
• Synonym(s):	Amethopterin
• Common trade name(s) in Switzerland:	Methotrexat “Ebewe”, Methotrexat Farmos, Methotrexat Proreo, Methotrexat Wyeth
• Conversion factors:	*mg/l x 2.20 = µmol/l* *µmol/l x 0.455 = mg/l*
Clinical pharmacology	
• Indications for TDM:	To ensure that plasma concentrations after infusion are < 0.46 mg/l at 48h and < 0.046mg/l at 72h and to adapt leucovorin rescue
• Protein binding:	50-60% (albumin)
• Elimination half-life:	5-9 h ($t_{½\alpha}$ = 0.75h; $t_{½\beta}$ = 2-3 h; $t_{½\gamma}$ = 6-20h)
• Volume of distribution:	2.6 l/kg
• Metabolism:	
- Main metabolic pathways:	Hydroxylation to 7-hydroxymethotrexate
- Active metabolite(s)?	7-hydroxymethotrexate (aldehyde oxidase, xanthine oxidase)
- Inhibitor or inducer of the cytochrome P450 system?	No
- Other significant pharmacokinetic interactions:	Folic acid and precursors/inhibitors, triamteren (increase of metabolism)
• Elimination of parent drug:	Renal 94% Hepatic 6%
• Typical therapeutic range:	No typical therapeutic range
• Potentially toxic concentration:	> 4.6 mg/l after 24h > 0.46 mg/l after 48h > 0.046 mg/l after 72h
Pre-analytics	
• Time to steady-state since beginning of treatment or change of posology:	20-36 h after chronic dosing
• Time for blood sampling:	Depends on the applied protocol.
• Type(s) of sample:	Serum or plasma, cerebrospinal fluid
• Stability:	48h at 4°C (screened from light)

Analytics	
• Position(s) in the analysis list/Method:	8435.00 → 9800.28 (anonymous position) (all methods)
Remarks	None
References	• *Arzneimittelkompendium Schweiz, Documed, 2005* • *Baselt, Disposition of Toxic Drugs and Chemicals in Men, 6th edition, Biomedical Publications, 2002* • *Grundlagen der Arzneimitteltherapie, Documed AG, 2005*