Phenobarbital

General	
• Class of the drug:	Antiepileptics
• Synonym(s):	
• Common trade name(s) in Switzerland:	Aphenylbarbit®, Luminal®
• Conversion factors:	mg/l x 4.31 = µmol/l µmol/l x 0.232 = mg/l
Clinical pharmacology	
• Indications for TDM:	Individual dose adaptation, verification of compliance, side effects, suspicion of toxicity
• Protein binding:	50% (to albumin)
• Elimination half-life:	50 – 150 h (varies with age, urinary pH, hepatic and renal function)
• Volume of distribution:	0.7 l/kg
• Metabolism:	
- Main metabolic pathways:	Hydroxylation by P450 cytochromes to form p-hydroxyphenobarbital followed by glucuro- or sulfoconjugation
- Active metabolite(s)?	No
- Inhibitor or inducer of the cytochrome P450 system?	Inducer of cytochromes CYP3A4 and CYP2C (also auto-induction)
- Other significant pharmacokinetic interactions:	Interaction with valproic acid (phenobarbital levels increase)
• Elimination of parent drug:	Hepatic: 75 % Renal: 25%
• Typical therapeutic range:	15 – 40 mg/l (64 – 172 µmol/l)
• Potentially toxic concentration:	> 50 mg/l (> 216 µmol/l)
Pre-analytics	
• Time to steady-state since beginning of treatment or change of posology:	10 - 30 days
• Time for blood sampling:	Before next dose at steady state

• Type(s) of sample:	Serum or plasma
• Stability:	48 hours at 4°C (for longer conservation freeze at -20°C)
Analytics	
• Position(s) in the analysis list/Method:	8630.01 Immunoassay 8630.02 HPLC/GC
Remarks	None
References	• *Compendium Suisse des Médicaments, Documed, 2005* • *Société suisse de Pharmacologie et de Toxicologie, Bases de la thérapeutique médicamenteuse (16ème éd.), Documed, 2005* • *Neels et al., Clin. Chem. Lab. Med. 42 (2004) 1228* • *Warner et al., Clin. Chem. 44 (1998) 1085*