Tacrolimus

General	
• Class of the drug:	Immunosuppressants
• Synonym(s):	FK506
• Common trade name(s) in Switzerland:	Prograf®
• Conversion factors:	*µg/l x 1.24 = nmol/l* *nmol/l x 0.80 = µg/l*
Clinical pharmacology	
• Indications for TDM:	Individual dose adaptation, symptoms of rejection or toxicity, CYP3A4 genetic deficiency
• Protein binding:	92 – 98 % localized in erythrocytes; in plasma 98.8 % bound to albumin
• Elimination half-life:	12 – 15 h
• Volume of distribution:	2.5 l/kg
• Metabolism:	
- Main metabolic pathways:	Liver, high affinity for CY3A4
- Active metabolite(s)?	31-O-desmethyltacrolimus, has a similar activity to tacrolimus
- Inhibitor or inductor of the cytochrome P450 system?	Strongly inhibitor for CYP1A2 and 3A4
- Other significant pharmacokinetic interactions:	PGP substrate and inhibitor
• Elimination of parent drug:	Hepatic > 99% Renal < 1 %
• Typical therapeutic range:	Dependent on combination therapy and indication
• Potentially toxic concentration:	> 30 µg/l
Pre-analytics	
• Time to steady-state since beginning of treatment or change of posology:	~ 3 days
• Time for blood sampling:	Before next dose at steady state
• Type(s) of sample:	Whole blood on EDTA
• Stability:	5 days at 25°C

Analytics	
• Position(s) in the analysis list/Method:	8634.01 Immunoassay 8634.03 LC-MS
Remarks	
References	•*-Compendium suisse des médicaments, 2005* •*-Holt DW et al, Therap Drug Monit 24 (2002) 59* •*-Macphee IAM et al., Transplantation 74 (2002), 1486* •*-Armstrong VW, Oellerich M. ;Clin Biochem. 34 (2001) 9* • *-Marzolini C et al, Clin Pharmacol Ther 75 (2004), 13*