Lamotrigine

Synonyms	Lamictal
Clinical Indication	Lamotrigine is an anti-epileptic drug, used for treatment of partial and generalised tonic-clonic seizures and in conditions such as bipolar disorder. Most evidence shows that plasma monitoring is unnecessary in the majority of patients on lamotrigine therapy. Monitoring may be useful in helping with dosing for patients on multiple therapy or in establishing compliance. The current recommendation is to titrate the lamotrigine dosage upwards until optimal seizure control is acquired or adverse effects become apparent. Increasing clearance during pregnancy is pronounced and can result in break-through seizures. Regular monitoring of lamotrigine concentrations is recommended during pregnancy. Drug Kinetics: Lamotrigine is rapidly and completely absorbed and maximum serum concentrations are reached approximately 3 hours after dosing. The drug is extensively metabolised by the liver and excreted in urine. In the first trimester of pregnancy clearance is increased. Concomitant therapy may affect levels by inducing liver metabolism (phenytoin and carbamazepine) or reducing clearance (valproate). Toxicity: Rashes (3-5% patients), weakness, visual disturbances, drowsiness, dizziness, unsteadiness, irritability, nausea and G.I. disturbances. Side effects may be seen in some patients with levels above 15 mg/L.
Part of Profile / See Also	
Request Form	Combined Pathology manual Blood form (Yellow/Black) or ICE request
Availability / Frequency of Analysis	Referred test: Analysed by the TDM Unit, Chalfont Centre for Epilepsy (8353), if specific criteria met.
Turnaround Time	2 weeks
Patient Preparation	Samples should be collected before next dose (trough)
Sample Requirements	
Specimen Type	Serum/lithium heparin plasma
Volume	1 ml
Container	 yellow top (SST) Or  Paediatric lithium heparin (Orange top – Sarstedt) Or  Paediatric lithium heparin (Pale green top BD

	Microtainer)
Reference Range & Units	3 - 15 mg/L.
Interferences	Sertaline increases serum lamotrigine concentrations. Oestradiol containing contraceptives can lower serum concentration of lamotrigine by up to 50%. Rifampicin, ritonavir and paracetamol can accelerate the metabolism of lamotrigine.
Interpretation & Clinical Decision Value (if applicable)	Time to steady state: 3-7 days. Patients on monotherapy with intractable epilepsy may require up to 15 mg/L to achieve adequate control, levels >15 mg/L do not improve seizure control and may give rise to toxicity. Factors such as age, pregnancy, disease states and concomitant medication will need to be considered when interpreting results.
References	Patsalos, P (2008) Antiepileptic drugs – best practice guidelines for therapeutic drug monitoring: A position paper by the subcommission on therapeutic drug monitoring, ILAE Commision on Therapeutic Strategies. *Epilepsia* **49**:7 1239 - 1276
Test code	LAMO
Lab Handling	Aliquot 500ul and store in referrals rack at 4C. Sent daily by first class post to TDM Unit, Chalfont Centre (UCLH).

UKAS MEDICAL
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