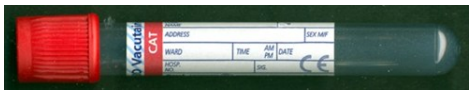
Valproate

Synonyms	Sodium valproate, Valproic acid, Epilim, Epival, Episenta
Clinical Indication	Sodium valproate is the drug of choice for treatment of myoclonic seizures and generalised absence seizures. **Drug Kinetics:** Valproate has a complex pharmacokinetic profile. It is strongly protein bound to plasma proteins and this binding is concentration dependent so that the free fraction rises (and hence the apparent clearance) at higher concentrations (~ >50 mgl/L). Free fatty acids displace valproate from binding sites and clearance is different in fed and fasting states. This helps explain the wide circadian variation and marked variations in serum concentration (up to 100%) that can occur across the dosage interval. Most evidence shows that serum monitoring is unnecessary in the majority of patients on valproate therapy and is potentially misleading due to the large inter-individual differences in rate of drug metabolism, There is a poor correlation between valproic acid dose and serum concentration, especially in patients who are co-medicated with enzyme-inducing AEDs. Occasionally, levels may be necessary (requested by Consultant Psychiatrists) in establishing whether dose can be increased in patients already receiving high doses (>1500 mg/day). Also, in children under 20 kg where dosage needs to be increased above 20 mg/kg. Requests addressing compliance must be discussed with Consultant Biochemist. **Toxicity:** Symptoms of neurotoxicity (nausea, vomiting, drowsiness) are increasingly frequent as levels exceed 100 mg/L (700 umol/L).
Part of Profile / See Also	
Request Form	Combined Pathology manual Blood form or ICE request. Please state dosage on request form.
Availability / Frequency of Analysis	Referred test: Analysed by Clinical Biochemistry, Broomfield Hospital, Essex, if specific criteria met.
Turnaround Time	2 weeks
Patient Preparation	Patient should be fasting and samples should be collected before next dose (trough).
Sample Requirements	
Specimen Type	Serum
Volume	2 ml
Container	 Red top (plain) tube preferred.  Yellow top (SST) tube acceptable if sample separated within 12 hours.


Paediatric SST tube (Brown top – Sarstedt)


Paediatric lithium heparin tube (Orange top -Sarstedt)

Paediatric plain tube (Red top – BD Microtainer)

Paediatric SST tube (Yellow top – BD Microtainer)

Reference Range & Units	Target Range: Studies show that valproate levels correlate poorly with clinical effect and a target range can be misleading as patients may be well controlled at levels below or above the range. Valproate levels should be interpreted in conjunction with clinical details.
Interferences	Serum valproic acid concentrations are decreased in patients on enzyme-inducing co-medication, due to enhancement of metabolism.
Interpretation & Clinical Decision Value (if applicable)	Overall, most patients are optimally treated with serum valproic acid concentrations of 50-100 mg/L
References	https://bnf.nice.org.uk/drug/sodium-valproate.html 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	VALP
Lab Handling	Aliquot and store in the referrals rack at 4°C. Samples left on gel should not be used if they have been left on gel for over 12 hours. Sent daily by courier to Broomfield Hospital.

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