Vitamin E

Synonyms	Alpha-tocopherol
Clinical Indication	Suspected vitamin E deficiency in at risk patients. Vitamin E is found in a variety of foods including oils, meat, eggs and leafy vegetables. Alpha-tocopherol is the most common and well known form of vitamin E and this is the primary bioactive form. Vitamin E deficiency is uncommon except in unusual circumstances due to the abundance of tocopherols in a wide variety of diets, including vegetarian and vegan diets. It occasionally occurs in patients with severe protein energy deficiency. Vitamin E deficiency is most commonly seen in patients with conditions that cause fat malabsorption such as pancreatic exocrine insufficiency, cholestatic liver disease and extensive resection or disease affecting the small intestine (short bowel syndrome, Crohn disease etc.). The degree of deficiency is generally proportional to the magnitude and duration of steatorrhea. These patients typically require high maintenance doses of vitamin E. There are also several genetic disorders that lead to vitamin E deficiency. For example, a mutation in the gene encoding the hepatic alpha-tocopherol transfer protein is associated with neurologic deficits and is known as ataxia with vitamin E deficiency (AVED). Sometimes these patients are responsive to oral supplementation however usually it serves to prevent progression of the disease. Clinical manifestations include ataxia, hyporeflexia, loss of proprioceptive sensation, skeletal myopathy and pigmented retinopathy may also be present. In premature infants vitamin E deficiency may cause a haemolytic anaemia. Data and literature about vitamin E toxicity and the tolerable upper limit for vitamin E is lacking. No syndrome of acute vitamin E toxicity has been described. Vitamin E in large doses can exacerbate vitamin K deficiency and therefore affect coagulation.
Part of Profile / See Also	
Request Form	Combined Pathology manual Blood form or ICE request
Availability / Frequency of Analysis	Referred test: Analysed at University College Hospital 8341, if specific criteria met.
Turnaround Time	Up to 3 weeks
Patient Preparation	None required
Sample Requirements	

Specimen Type	Lithium heparin plasma – SAMPLES MUST BE PROTECTED FROM LIGHT (place sample in a brown envelope or wrap in foil). Same sample can be used for Vitamin A.
Volume	2ml
Container	 Lithium heparin – without gel (Dark green top – BD Vacutainer)  Paediatric lithium heparin (Orange top – Sarstedt tube)  Paediatric lithium heparin (pale green top – BD Microtainer tube)
Reference Range & Units	Adult: 11.6 – 41.8 umol/L Children: age related reference range is provided on the report
Interferences	
Interpretation & Clinical Decision Value (if applicable)	The determination of vitamin E:cholesterol ratios can be used to better define the vitamin E status of patients with disease states or disorders likely to raise LDL cholesterol, e.g. cholestasis.
References	Up to Date – Overview of Vitamin E – Searched November 2018 http://www.viapath.co.uk/our-tests/vitamins-a-and-e Food Standards Agency. Safer upper limits for vitamins and minerals. Expert group on vitamins and minerals. 2003. 1st ed. London, Foods Standards Agency Ford, L et al The value of measuring serum cholesterol adjusted vitamin E in routine practice 2006 *Annals of Clinical Biochemistry* 43(2) 130-134
Test code	VITE
Lab Handling	Aliquot 500ul of plasma and store in frozen referrals rack at -20C, keep plasma protected from light (place in a brown envelope or wrap in foil). Sample sent frozen by courier to King's College.

UKAS MEDICAL 8341

Accredited to ISO 15189:2012