

# Homocysteine

## Synonyms

## Clinical Indication

- Possible homocystinuria (rare autosomal recessive disorder which manifests as developmental delay, Marfanoid appearance, osteoporosis, ocular abnormalities, thromboembolic disease and severe premature atherosclerosis)
- Risk stratification in patients in whom premature vascular disease, CVA and thrombosis is apparent
- Thrombotic tendency
- Increased levels of homocysteine may reflect deficiency of folate or vitamin B12. Plasma homocysteine is a sensitive functional indicator of vitamin B12 and folate status.

## Part of Profile / See Also

Please note that for paediatric requests, homocysteine can be included in the plasma amino acid analysis if required. Please state on the request form.

## Request Form

Combined Pathology manual Blood form or ICE request

## Availability / Frequency of Analysis

Referred test: Analysed by King's College Hospital, (Synnovis 9093) if specific criteria met.

## Turnaround Time

2 weeks

## Patient Preparation

Patient should be fasting as homocysteine levels may increase after food.

## Sample Requirements

### Specimen Type

EDTA (lithium heparin Plasma and serum can also be used provided they are separated from the cells within one hour of collection).

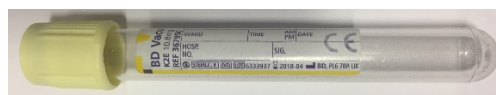
### Volume

2 ml

### Container



Pink top (EDTA)



lemon top (EDTA)



Paediatric EDTA (Red top – Sarstedt)



Paediatric EDTA (Pink top – BD Microtainer)

Sample must be transported to the laboratory and separated within 1 hour of collection. Patients must be bled at Basildon or Southend Hospital only. Samples received in the laboratory >1 hour after venepuncture will not be processed.

## Reference Range & Units

Ranges are age/sex related:

0-1 yr: <6.5 µmol/L  
 2-15 yr: <10 µmol/L  
 15-65 yr (female): <13 µmol/L  
 15-65 yr (male): <15 µmol/L  
 >65 yr: <16 µmol/L

In pregnancy, trimester specific homocysteine reference cut-offs apply:

First trimester: <7 µmol/L  
 Second trimester: <7 µmol/L  
 Third trimester: <10 µmol/L

### Interferences

Some drugs used in the treatment of hypercholesterolaemia can cause raised homocysteine levels. Metformin has also been associated with increased homocysteine level. Smoking may elevate homocysteine levels.

### Interpretation & Clinical Decision Value (if applicable)

Raised homocysteine may indicate a genetic disorder of sulphur amino acid metabolism and/or B12/folate deficiency.

Raised homocysteine is reported to be a risk factor for premature cardiovascular and cerebrovascular disease and/or clotting tendency however interventions to lower homocysteine have not been shown to prevent cardiovascular disease or venous thromboembolism (with the possible exception of stroke).

### References

<https://www.synnovis.co.uk/our-tests/homocysteine>

Up to Date – Overview of Homocysteine. Searched Sept 2018

### Test code

HCYS

### Lab Handling

Centrifuge and aliquot sample within 1 hour of collection and store in the referrals rack at 4°C. If there will be a delay in sending the sample to the referral laboratory (i.e. on a Friday/Bank Holiday) it should be stored in the frozen referral rack at -20°C. Please ensure the sample type is written on the aliquot.

For manual request entry: Please make sure you use the code HCYS. PHCY is only to be used for paediatric requests.

