

# Copper

## Synonyms

Cu

## Clinical Indication

The majority of copper in circulation is bound to caeruloplasmin which is synthesised in the liver. Copper deficiency presents as a microcytic hypochromic anaemia with marked neutropenia. Frank dietary copper deficiency is uncommon.

Two heritable diseases are caused by errors of copper metabolism: Wilson's disease is a disorder of copper excretion and is characterised by signs of copper toxicity, whereas Menkes disease is a disorder of copper uptake from the intestine and is characterised by signs of copper deficiency.

Approximately 50% of copper is excreted in the bile while the remaining half is excreted through other GI secretions. This excretion into the GI tract is the major pathway that regulates copper homeostasis.

Acquired copper deficiency is associated with each of the following:

- Bariatric surgery (gastrectomy, gastric bypass etc.) – yearly monitoring is advised
- Chronic diarrhoea or other malabsorptive conditions such as coeliac disease
- Excessive zinc ingestion
- Chronic liver disease

Serum copper should not be used as a front line test for diagnosis of Wilson's disease (caeruloplasmin, 24 hour urine copper excretion, Kayser-Fleischer rings are the preferred tests). Serum copper is not sensitive or specific for the diagnosis of Wilson's disease.

## Part of Profile / See Also

## Request Form

Combined Pathology manual Blood form or Order Comms request form

## Availability / Frequency of Analysis

 Referred test: Analysed at King's College Hospital [Synnovis 9067](#), if specific criteria met.

## Turnaround Time

2 weeks

## Patient Preparation

None required

## Sample Requirements

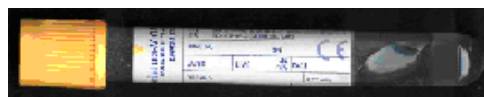
### Specimen Type

Serum


### Volume


2 ml

### Container



Yellow top (SST) tube

Or  Paediatric lithium heparin (Orange top – Sarstedt tube)

Or  Paediatric lithium-heparin (pale green top – BD Microtainer tube)

#### Reference Range & Units

Adult range: 12- 25umol/L

#### Interferences

This analyte is an acute phase reactant therefore levels will be raised in the setting of inflammation (high CRP). Levels may be raised by oestrogens and pregnancy.

#### Interpretation & Clinical

Provided for levels outside the reference range.

#### Decision Value (if applicable)

#### References

Up to Date (searched 29/11/2019)

<http://www.viopath.co.uk/our-tests/copper-1>

#### Test code

CU

#### Lab Handling

Aliquot 500ul and store in referrals rack at 4C. Sent daily by courier to King's College, London.



9067  
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ISO 15189:2012