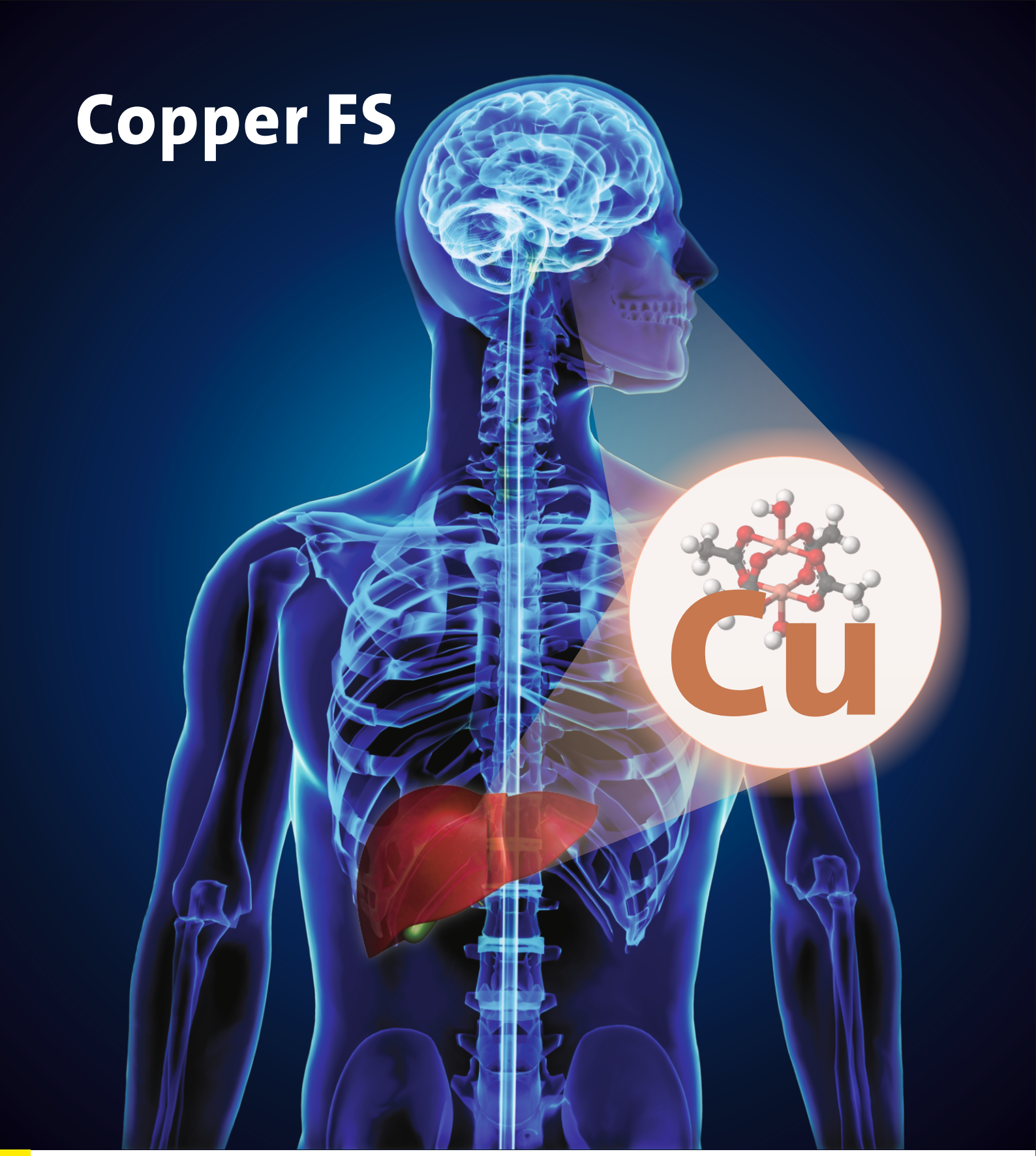
Copper FS



Precise. Accurate. Reliable.
Liquid Stable. Single Reagent.

DiaSys
Diagnostic Systems

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Summary

Copper contained in food is absorbed within the duodenum, followed by transport to the liver bound to albumin, and for the most part is excreted fecally via the bile. A small portion is bound to apoceruloplasmin in the liver reaching the tissues via the blood stream. 90% of serum copper is present in the form of ceruloplasmin.

Copper is an integral component of at least 16 essential metalloproteins exerts its effects within the body predominantly on connective tissue formation, central nervous system function, and hematopoiesis.

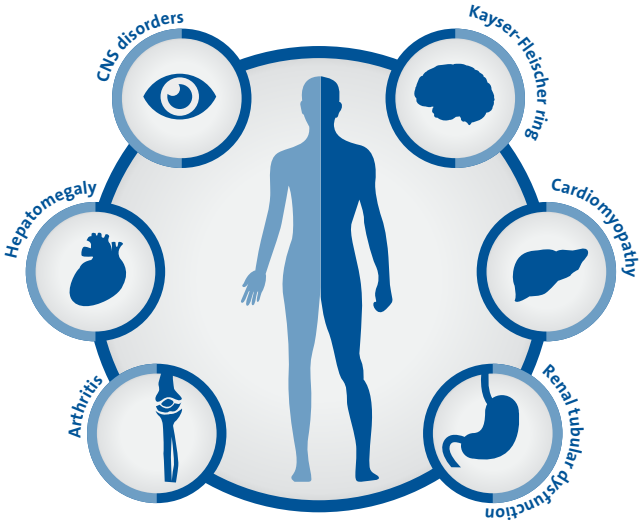
There are two forms of hereditary copper metabolic diseases,e.e. Wilson's disease and Menkes' kinky hair syndrome.

A decrease in serum copper may result from renal losses in ceruloplasmin and from excessive iron or zinc in the food due to absorption-related competition.

Elevated serum copper is normally found during the last trimester of pregnancy and also in estrogen and oral contraceptive intake. Serum copper elevations are usually observed in acute and chronic infections, in various tumors, especially also in cases of liver damage associated with impaired biliary flow, in liver cell cancer, and in conjunction with exocrine pancreatic insufficiency.

Principle

At pH 4.7, copper is released from the carrier protein and forms a chelate complex with 4-(3,5-Dibromo-2-pyridylazo)-N-ethyl-Nsulfopropylaniline.The increase of absorbance of this complex is proportional to the concentration of total copper in the sample.



Wilson's Disease

Performance Characteristics

Precision

Intra-assay (n=10)	Mean (µg/dL)	SD (µg/dL)	CV (%)
Sample 1	72.6	2.41	3.32
Sample 2	121	2.98	2.46
Sample 3	170	1.97	1.16

Inter-assay (n=15)	Mean (µg/dL)	SD (µg/dL)	CV (%)
Sample 1	72.6	0.96	1.32
Sample 2	121	1.06	0.87
Sample 3	170	1.76	1.04

Linearity

Linearity is 500 µg/dL (78.65 µmol/L).

Sensitivity/Limit of Detection

The lower limit of detection is 3 µg/dL.

Method Comparison

A comparison between DiaSys Copper (y) and a commercially available test (x) gave the following result: $y = 1.030\,x + 0.0042$; $r = 0.991$.

Features and Benefits

- Direct colorimetric DiBr-PAESA method
- Without deproteinization on serum and plasma
- End-Point reaction in 5 min at 37 °C
- Standard included in the kit
- Liquid Stable; Single reagent
- Economical and fast analysis
- No interferences by clinical samples.

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