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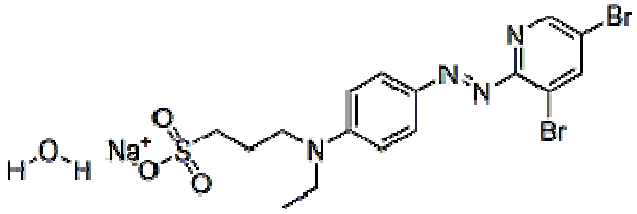
ZellBio Copper (Cu) assay kit (96 Tests)
(V4126)

Introduction:

ZellBio (GmbH, Germany) Copper assay Kit provides a simple, reproducible, and standardized tool for assessment of copper in biological samples e.g. **heparinized plasma (do not use any other anticoagulants), serum, tissue homogenates, and cell lysates**. The zinc activity determine colorimetrically at **580nm (570-590nm)**.



Copper is an important trace element and is associated with a number of metalloproteinases. It is an integral component of many metalloenzymes, such as Ceruloplasmin. Copper deficiency is characterized by retarded growth and microcytic anemia.
Copper is dissociated from Ceruloplasmin at pH 4.7 which then reacts with a color reagent to form a stable colored chelate. The intensity of the color is directly proportional to the amount of copper in the sample.

Kit Contents:

1. Reagent 1: ZB-Cu-R1, Copper Reagent 23mL, (Cu211), Ready to Use.
2. Reagent 2: ZB-Cu-R2, Standard (250µg/dL) 0.4mL, (Cu212).
3. Microplate: ZB-Cu-M, (Cu213).

Assay Range:

ZellBio copper assay kit can be used for total copper content determination in range of up to 500µg/dL (80µmol/L). Expected Value for human sample usually is 70-140µg/dL (11-22µmol/L) for male and 80-155µg/dL (12.6-24.4µmol/L) for female.

Assay Sensitivity:

ZellBio copper assay kit can determine copper content in wide variety of biological samples with 1µg/dL sensitivity. The assay sensitivity was determined based on zero standard signal repeat and Mean±2SD.

Assay Precision:

Human serum sample with replication No.8 showed the intra and inter assay coefficient of variation 2.8% and 1.3% respectively.

Assay Protocol:

All reagents/samples must be equilibrated to RT before test. Shake the samples for homogenation.

1. Add 10µL unknown samples/standard/DDW as blank into related wells of microplate.
2. Add 200µL Copper Reagent into all wells.
3. Incubate 5min at 37˚C.
4. Read the wells absorbance with microplate reader/ELISA reader at 580nm (570-590nm).
5. Calculate lactate in unknown samples based on below formula:

$$Copper\ (\mu mol/L\ or\ \mu g/dl) = \left(\frac{OD\ Sample - OD\ Blank}{OD\ Standard - OD\ Blank}\right) \times Standard\ Concentration$$

References:

1. Tietz NW, Clinical Guide to Laboratory Tests, 3rd Edition Abe. A. et al (1989) Clinical Chemistry 35:4 552-554.
2. Lull, ME et al (2008) - Plasma biomarkers in pediatric patients undergoing cardiopulmonary bypass. Pediatr Res. 63(6):638-44.
3. Stuerenburg HJ, Eggers C (200). Early detection of noncompliance in Wilson's disease by consecutive copper determination in cerebrospinal fluid. J Neurol Neurosurg Psychiatry 69: 701-702.
4. Liska SK, Kerkay J, Pearson KH (1985). Determination of zinc and copper in urine using Zeeman effect flame atomic absorption spectroscopy. Clin Chim Acta. 151:231-236.
5. Tessman RK, Lakritz J, Tyler JW, Casteel SW, Williams JE, Dew RK. (2001). Sensitivity and specificity of serum copper determination for detection of copper deficiency in feeder calves. J Am Vet Med Assoc. 218:756-760.