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CE IVD

Alpha-1 Microglobulin - Urine, for Turbidimetry

General Information: structure, function ...

Alpha-1 Microglobulin (A1m) is a low molecular weight glycoprotein (26 kDa), composed of a 183-amino-acid peptide carrying three carbohydrate chains. A1m is a member of the lipocalin protein superfamily, and it is synthesized in most cells of the body, but mainly in the liver. Circulating A1m is freely filtered by glomeruli, and reabsorbed by renal proximal tubules, where it is catabolized.

A1m binds and degrades heme, is a radical scavenger as well as a reductase. A model has been proposed in which A1m is described as a circulating "waste bin" which continuously removes free radicals and oxidizing agents, particularly heme, from the tissues. It is therefore believed to protect cells and tissues against the damage that is induced by abnormally high concentrations of free hemoglobin and/or reactive oxygen species (also called "oxidative stress").

A1m is also immunoregulatory: the immune response of lymphocytes and neutrophils is partly suppressed by A1m.

Clinical Significance

Under normal conditions, in a similar fashion to other micro-proteins, A1m is almost completely reabsorbed by the renal tubules and only a very little amount is excreted in the final urine. Therefore, an increase in urinary concentration is indicative of lesions of the proximal tubule and/or tubular dysfunction. Elevated excretion rates can indicate tubular damage associated with renal tubulointerstitial nephritis or tubular toxicity due to nephrotoxic drug or heavy metal exposure. Glomerulonephropathies and renal vasculopathies also are often associated with coexisting tubular injury and so may result in elevated excretion. Elevated A1m in patients with urinary tract infections may indicate renal involvement (pyelonephritis). A1m is considered a good tubular dysfunction marker due to their quite constant production rates and their stability in urine, even at altered pH.

A test for preeclampsia, where A1m serves as the diagnostic marker, has been proposed. It is based upon the fact that oxidative stress in the placenta tissue triggers the endogenous synthesis and plasma concentration of the protein.

Assay Performances and Characteristics

- **Turbidimetric Immunoassay (TIA),** enhanced with polystyrene particles, for their use on Clinical Chemistry automatic analyzers
- Applications available for the most common analyzers.
- Ready-to-use Reagents, prediluted 6 level Calibrators, and 2 level Controls.

Catalogue

3diag - **U-A1m** - Tia Kit

REF TD-42835 Σ 100 test

EAN/GTIN: 8434477315053

Contains Reagents, Calibrators and Controls

Also available for other analytical platforms. For further information, please contact the Customer Support Service at support@3diag.com