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Carbonyl protein (ELISA)

Protein carbonyl groups as biomarkers of oxidative stress • Ultra sensitive assay for the determination of protein carbonyls

Reactive oxygen species (**ROS**) can oxidize proteins, lipids, and DNA, causing structural and functional cell damages. Proteins are oxidized by free radicals, whereby the constituent amino acids are variously modified or degraded. The modifications result in new functional groups such as **carbonyl groups**, which may lead to protein fragmentation, formation of protein-protein cross-linkages, disruption of the tertiary structure and loss of functional activity. In addition, ROS are directly associated with diseases like atherosclerosis, rheumatoid arthritis, Alzheimer's and Parkinson's disease as well as ageing and cancerogenesis.

Test characteristics

Ultra-sensitive

- → Determination of less than 2.2 nmol/mg
- → Minimal loss of protein during sample preparation

Reliable

- → Detection and quantification from one sample
- → No interference with haemolytic samples or samples with high amount of bilirubin

Highly specific

- → No determination of non-protein molecules

Versatile

- → Suitable for determination in plasma, intra- and extracellular liquids and tissue extracts
- → Also suitable for samples with low protein content
- → Suitable for human and veterinary samples

Economically

- → 4 µL sample volume only – determination in plasma from capillary blood samples possible

Carbonylated proteins are generated by a variety of oxidative mechanisms and are sensitive markers of oxidative injury. The quantity of protein carbonyls in a protein sample can be determined by derivatizing with dinitrophenylhydrazine (DNPH) and by measuring bound anti-DNPH antibodies. **Our ELISA enables the quantitative determination of carbonyl proteins even in samples with low (picrogram) protein content**

Research areas

- Artherosclerosis
- Alzheimer's disease
- Parkinson's disease
- Rheumatoid arthritis
- Uraemia
- Diabetes
- Ageing
- Cancerogenesis

Suitable samples

- EDTA plasma
- bronchioalveolar lavage
- cerebrospinal liquid
- cell and tissue extracts
- other soluble protein containing liquids

➨ **Also suitable for samples low in protein!**

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Carbonyl protein	*(for research use only)*
Matrix	biological samples
Sample volume	4 µL
Test principle	ELISA
Cat. No.	KR7822

Carbonyl protein	
Matrix	Serum, Plasma
Sample volume	10 µL
Test principle	ELISA
Cat. No.	K 7870

Literature:

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Stadtman ER, Oliver CN (1991) Metal-catalyzed oxidation of proteins. Physiological consequences. J Biol Chem 266(4):2005-8. Review

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US: all products: Research Use Only. Not for use in diagnostic procedures.