

Oxidized DNA ELISA

8-hydroxy-2'-deoxyguanosine (8-OHdG)

User-friendly
and complete
ELISA Kit

Biomarker for assessment of the oxidative stress status

Clinical study marker in the fields of free radical and cancer research

Cornerstone for determination of the overall health condition

Evaluation if the diet is balanced and assessment of aging processes

Direct measurement of urine samples

Introduction

Reactive Oxygen Species (ROS) produced in the metabolic pathway of cells cause oxidative damages to macromolecules such as lipid bi-layers of cell membranes, proteins and nucleic acids (DNA and RNA). An array of antioxidants and repair mechanisms is available to balance the effects of oxidative stress.

Research has shown oxidative stress to be tightly correlated with a number of diseases. AIDS, inflammatory diseases, Diabetes, cancer and aging in general can be affected by oxidative stress.

Regarding nuclear and mitochondrial DNA, 8-hydroxy-2'-deoxyguanosine (8-OHdG) is one of the predominant products of free radical-induced oxidation. It is widely used as a biomarker for oxidative stress and carcinogenesis. Studies have shown that urinary 8-OHdG is a good biomarker for risk assessment of various forms of cancer and degenerative diseases.

BÜHLMANN oxidised DNA ELISA

The BÜHLMANN oxidized DNA ELISA (EK-ODG) kit is a user-friendly and complete kit that contains the following reagents including internal controls. No additional reagents are required.

REAGENTS	EK-ODG
Mikrotiter plate (wells)	96
Incubation Buffer	1 x 50 ml
Calibrator	1 x lyoph.
Controls - Low, High	2 x lyoph.
Enzyme Label	1 x 11 ml
Biotin Conjugate	1 x 5.5 ml
Substrate (TMB)	1 x 11 ml
Stop Solution	1 x 11 ml
Wash Buffer Concentrate	1 x 100 ml

The competitive ELISA is based on a specific monoclonal antibody (86-4-2) developed by BÜHLMANN Laboratories AG.

Besides cross-reactivity to oxidized RNA, 8-OHG (20%) and to the oxidized base, 8-OHGua (17%); no other significant cross-reactivity was detected. Therefore, the BÜHLMANN ELISA is suitable to specifically detect the complete oxidative status of the genetic material of the organism.

Urine, the specimen of choice, can be used without specific extraction or pre-treatment. The sample has to be diluted 1:10 with the Incubation Buffer provided.

An application for the measurement of serum samples is available for download on the website (www.buhlmannlabs.ch).

Application

Applications for BÜHLMANN oxidized DNA ELISA (EK-ODG) are clinical studies, especially in cancer research and studies on inflammatory diseases.

Besides research groups, laboratories testing general markers of individual general health conditions, well being and aging offer oxidized DNA tests in their product panel.

Knowledge about the individual oxidative stress status might allow early disease prevention. Numerous service laboratories already offer large panels of different tests to estimate the status of oxidative stress.

Besides determination of micronutrients, markers for iron metabolism and oxidized lipids, the determination of oxidized DNA has become a major cornerstone in the assessment of oxidative stress.

Literature

BÜHLMANN recommends the following review articles to get a comprehensive overview over oxidative degradation processes of biomolecules:

- 1 Evans M.D. et al.
Oxidative DNA damage and disease: Introduction, repair and significance.
Mutat Res 567 1-61 (2004)
- 2 Knasmüller S. et al.
Use of conventional and -omics based methods for health claims of dietary antioxidants: a critical overview.
Br J Nutr 99, E-Suppl. 1, E53-52 (2008)

