BIOXYTECH® F_2-Isoprostane Metabolite

Enzyme Immunoassay for F_2-Isoprostane Metabolite
For Research Use Only. Not For Use In Diagnostic Procedures.

Catalog No. 21049

INTRODUCTION

F_2-isoprostanes formed as a result of free radical-mediated non-enzymatic peroxidation of membrane-bound arachidonic acid are largely metabolized before excretion. They can be found in esterfied tissues, plasma lipids and other body fluids (1). Thus, they can be used to evaluate local or systemic lipid peroxidation in vivo. Four classes of isoprostanes have been described, each potentially present in 16 isomers. 8-epi-prostaglandin- $F_{2\alpha}$ (8-epi-PG $F_{2\alpha}$ or sometimes called iP $F_{2\alpha}$ -III), a major component of the F_2-isoprostane family with mitogenic and vasoconstrictor capability, can be noninvasively measured in urine to assess in vivo lipid peroxidation (2). In humans, increased F_2-isoprostane levels have been found in different pathophysiological conditions such as atherothrombotic disease, diabetes, hypercholesterolemia, Alzheimer's and cigarette smoking (2, 3, 4). However, not all of the amount of F_2-isoprostanes detected in urine may be of systemic lipid peroxidation origin. So far, three major urinary and plasma metabolites of 8-epi-PG $F_{2\alpha}$ have been reported in humans and rats: 2,3-dinor-5,6-dihydro-8-epi-PG F_2, 2,3-dinor-8-epi-PG $F_{2\alpha}$ and 2,3,4,5-tetranor-15-keto-13,14-dihydro- 8-epi-PG $F_{2\alpha}$ (5, 6). In addition, autoxidation of α-linolenic acid found in plants will also produce 2,3-dinor-5,6-dihydro-8-epi-PG $F_{2\alpha}$, a major urinary metabolite in humans (5). Thus, the measurement of major metabolites of endogenous 8-epi-PG $F_{2\alpha}$in addition to the parent compound may be useful for both (a) allowing the researcher to obtain a more accurate evaluation of the overall production of the biomarker in vivo while adding significance to individual measurements; and (b) providing a compound that can be measured without the risk of artificial production ex vivo. This assay may be used for the quantification of metabolites of 8-epi-PG $F_{2\alpha}$ in samples without the need for prior purification or extraction.

The Bioxytech® F_2-Isoprostane Metabolite Assay is a competitive enzyme-linked immunoassay (ELISA) for determining levels of F_2-Isoprostane Metabolite. Briefly, the samples are mixed with a pretreatment reagent that essentially eliminates interferences due to non-specific binding. The F_2-Isoprostane Metabolite in the sample or standard then competes with F_2-Isoprostane Metabolite conjugated to horseradish peroxidase (HRP Conjugate) for binding to a polyclonal antibody specific for F_2-Isoprostane Metabolite coated on the microplate. Following substrate addition, the intensity of the color is proportional to the amount of F_2-Isoprostane Metabolite HRP Conjugate bound and inversely proportional to the amount of unconjugated F_2-Isoprostane Metabolite in the sample or standard.

Catalog Number:	21049
Format	96 Well Plate
Specimen Requirements:	Urine
Kit Contents	96 well microtiter plate precoated with anti-F_2-Isoprostane Metabolite F_2-Isoprostane Metabolite Standard Pretreatment Reagent Dilution Buffer Wash Buffer TMB Substrate HRP Conjugate
Specificity	F_2-Isoprostane Metabolite 100.00% F_2-Isoprostane (8-epi Prostaglandin $F_{2\alpha}$) 0.98% Prostaglandin $F_{1\alpha}$ 0.75% 11b-Prostaglandin $F_{2\alpha}$ 0.29% 6-keto Prostaglandin $F_{1\alpha}$ < 0.25% Thromboxane B_2 < 0.25% Arachidonic Acid < 0.25%
Sensitivity	0.5 ng/mL