PRODUCT INFORMATION

Xanthine Oxidase (bovine)

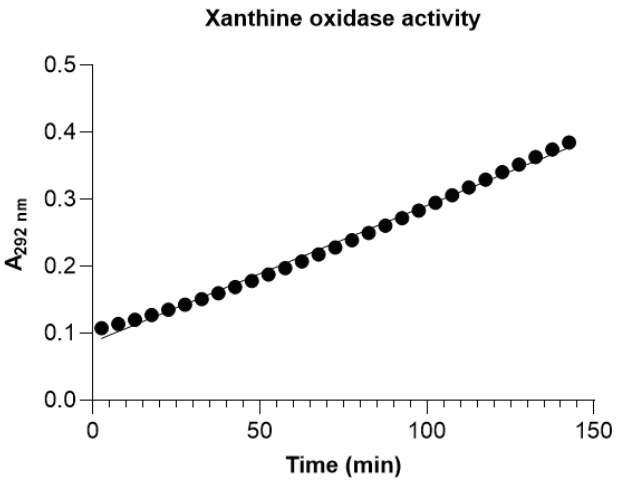
Item No. 38017

Overview and Properties

Synonyms:	Xanthine Dehydrogenase/Oxidase, Xanthine Oxidoreductase, XO, XOR
Source:	Raw bovine milk
Amino Acids:	1-1,332 (full length)
Molecular Weight:	146.79 kDa
Storage:	4°C (as supplied)
Stability:	≥6 months
Supplied in:	2.3 M Ammonium sulfate with 10 mM sodium phosphate, pH 7.8, 1 mM EDTA and 1 mM sodium salicylate
Activity:	***batch specific*** U/ml
Unit Definition:	One unit is defined as the amount of enzyme required to formation of 1 µmol of uric acid per minute at room temperature in 50 mM Tris, pH 8.0, buffer using 0.1 mM hypoxanthine as a substrate.

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Image



Xanthine oxidase activity measured at 292 nm in the presence of 0.1 mM hypoxanthine and 0.1 mM DTPA at room temperature in 50 mM Tris, pH 8.0.

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Description

Xanthine oxidase (XO) is a complex metalloflavoprotein involved in purine catabolism, oxidative stress, and xenobiotic metabolism, among other processes.[1,2] It exists as a homodimer and each monomer is composed of an N-terminal domain that contains two unequal iron-sulfur clusters, an intermediate domain that contains the FAD cofactor, and a C-terminal domain that contains the molybdopterin cofactor. XO is primarily expressed in the liver and intestines, has been found in blood, serum, and milk, and localizes to the cytosol, cell membrane, and peroxisomes.[1] It is produced by irreversible or reversible post-translational modification of xanthine dehydrogenase (XD) *via* limited proteolysis or oxidation of XD thiol groups, respectively.[1,2] XO catalyzes the conversion of hypoxanthine to xanthine to uric acid and uses molecular oxygen as the electron acceptor, compared with XD that uses NAD^+, and this results in the generation of hydrogen peroxide and superoxide, which can react with nitric oxide (NO) to produce peroxynitrite.[1-3] In hypoxic conditions, XO converts nitrates and nitrite to NO.[4] Increased blood levels of XO's enzymatic product uric acid, hyperuricemia, is associated with several diseases, including gout, cardiovascular disease, ischemia-reperfusion injury, obesity, and diabetes.[1,2,5,6,7] XO has commonly been used in coupled enzyme assays to measure superoxide dismutase (SOD) activity.[8,9] Cayman's Xanthine Oxidase (bovine) protein can be used for enzyme activity assays.

References

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