Cell Technology, Inc

Fluoro: SSAO™

Semicarbazide-Sensitive Amine Oxidase Detection Kit

Key Benefits

- Non Radioactive
- Enzyme Positive Control included in kit.
- Can monitor multiple time points to follow kinetics.
- One-step, no wash assay.
- Adaptable for High Throughput format.
- Monitors enzymatic activity.

Assay Principle

Semicarbazide-sensitive amine oxidase (**SSAO**) is a common name for a widely distributed enzyme in nature. In man this enzyme is present in the vascular system and circulates in plasma. SSAO differ from the monoamine oxidases A and B in substrate and inhibitor patterns. These enzymes have been widely studied and their tissue distribution, molecular properties, substrate specificities and inhibitor sensitivities are extensively reviewed (2,3).

SSAO exists in two forms: tissue bound and soluble (plasma SSAO). Tissue bound SSAO acitvity is associated with blood vessels, mainly in smooth muscle layers, however it is also associated with spleen, placenta, bone marrow, kidney, sclera, retina, endothelial cells, adipocytes, chondrocytes and fibroblasts. (4,5). It is expected and evidence suggests that Plasma SSAO originates from the cleavage of membrane-bound form. The possible sources of plasma SSAO are still unclear, but it has been suggested that it may be derived from liver, retina, placenta and bone tissue (6,7,8).

SSAO's functional role has been suggested to be involved in: apoptosis, atherogenesis, cell adhesion, leucocyte trafficking, glucose transport and local production of hydrogen peroxide. Elevated levels of SSAO have been reported in congestive heart failure, diabetes mellitus, alzheimer's disease and various other inflammatory diseases. Furthermore, by products of SSAO deamination, such as formaldehyde and methylglyoxal, have been proposed to be involved in pathogenesis of cancer, aging and atherosclerosis (1 review).

The Fluoro SSAO detection kit utilizes a non- fluorescent detection reagent to measure H_2O_2 released from the conversion of Benzylamine to Benzaldehyde via SSAO. Furthermore H_2O_2 oxidizes the detection reagent in a 1:1 stoichiometry to produce a fluorescent product resorufin. This oxidation is catalyzed by Peroxidase.

Reaction:

Benzylamine + O2+ H2O + SSAO $\longrightarrow$ Benzaldehyde + NH3 + H2O2

H_2O_2 + Detection reagent (non-fluorescent) + Peroxidase $\longrightarrow$ Resorufin(fluorescent)

Excitation: 530-571nm Emission: 590-600nm

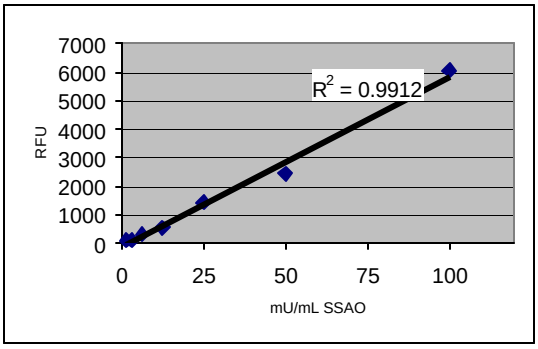

Figure 1 Figure 1. Bovine serum Semicarbazide-sensitive amine oxidase was serially diluted in 1X Reaction buffer. The serially diluted samples were run as described in the protocol. The samples were read after a 3 hours incubation period. Excitation: 530nm and emission: 590nm.

Ordering Information

Catalog #	Size	Price (US$)
SSAO 100-3	500	345

References:

1. Yayýn tarihi Kasým, et. al. Semicarbazide and Physiological Properties. Turk J Biochem 2004;29 (3);247
2.B.A.Callingham,A.Holt,J.Elliott.*J.Neural Transm.* (Suppl.)**32** ,279 –290 (1990).
3.B.A.Callingham and M.A.Barrand.*J.Neural Transm.* (Suppl.)**23** ,37 –54 (1987).
4.G.A.Lyles.*J.Neural Transm.* (Suppl.)**41** ,387 –396 (1994).
5. K.Magyar, Z.Mészáros and P.Mátyus . Semicarbazide-sensitive amine oxidase.Its physiological significance *Pure Appl.Chem.* ,Vol.73,No.9,pp.1393 –1400,2001.
6. Boomsma F.,van Dijk J.,Bhaggoe U.M.,Bouhuizen A.M.B.,van den Meiracker A.H.(2000)Variation in semicarbazide-sensitive amine oxidase activity in plasma and tissues of mammals.Comp.Biochem.
7. Ekblom J.,Gronval J.L.,Garpenstrand H.,Nillson S.,Oreland L.(2000)Is semicarbazide-sensitive amine oxidase in blood plasma partly derived from the skeleton?.Neurobiology,8,129-135.
8. McGuirl M.A., Dooley D.M.(1999)Copper-containing oxidases. Curr.Opin.Chem.Biol.,3,138-144.
9. Methods Enzymology 142, 617 (1997).
10 Holt A. ; Sharman D.F. ; Baker G.B. ; Palcic M.M. A Continuous Spectrophotometric Assay for Monoamine Oxidase and Related Enzymes in Tissue Homogenates **Analytical Biochemistry**, January 1997, vol. 244, no. 2, pp. 384-392(9).
11 Biochem Pharmacol 18, 1447 (1969).

Cell Technology, Inc.
950 Rengstorff Ave Suite D
Mountain View, CA 94043
USA

Tel: 650-960-2170
Fax: 650-960-0367
sales@celltechnology.com

www.celltechnology.com