abcam

Product datasheet

Oxidative Stress Defense (Catalase, SOD1, TRX, smooth muscle Actin) Western Blot Cocktail ab179843

★★★★★ 2 Abreviews 7 References 2 Images

Overview

Product name	Oxidative Stress Defense (Catalase, SOD1, TRX, smooth muscle Actin) Western Blot Cocktail
Sample type	Cell Lysate, Tissue Homogenate
Species reactivity	**Reacts with:** Human **Does not react with:** Mouse, Rat
Product overview	This Oxidative Stress Defense Western Blot Cocktail is designed to determine the relative abundance of several important proteins involved in the protection of cells against oxidative stress and the regulation of reactive oxygen species (ROS). Reactive oxygen species' are produced naturally in cells as byproducts of the metabolism of oxygen as well as in response to various environmental stresses including UV radiation, pollutants, and heat exposure. Additionally, ROS levels can be altered by disease and injury, including cancer, neurodegenerative disease, cardiovascular disease, ischemia, stroke and aging. Reactive oxygen species also play an important role in cell signaling, a process called redox signaling. The regulation of ROS within cells is important for maintaining a proper homeostasis. Superoxide dismutase 1 (SOD1) scavenges harmful superoxides (O2-) within cells protecting them from harmful oxidation of lipids, proteins and nucleic acids. Its altered expression levels have been linked to Down's syndrome, ALS and various cancers. Similarly, the hydrogen peroxide(H2O2) scavenging enzyme, catalase, also regulated ROS concentrations within cells by reducing H202 into less reactive O2 and water. Thioredoxin is a small enzyme (12kDa) that facilitates the reduction of other enzymes via cysteine thiol-disulfide exchange. Thioredoxin is used by cells to reduce ROS amounts and in redox signaling processes. Finally, alpha smooth muscle actin was included in the cocktail as a loading control. Widely expressed, smooth muscle actin is involved in cell structure and motility. These four readouts are easily resolved by western blot given their different molecular weights. Because they are all rabbit monoclonal antibodies, an anti-rabbit secondary should be used for detection. Expected and observed MWs:

Catalase: 60 kDa

Smooth Muscle Actin: 42 kDa

Superoxide Dismutase 1: 16 kDa

Thioredoxin: 12 kDa

WB Notes:

- WB samples should be heated to 95°C for 5 minutes in sample buffer before loading.

- Suggested working concentration is 1X for primary antibody cocktail.

- Suggested dilution buffer is 5% milk/PBS+0.05%Tween 20.

The cocktail contains 50% glycerol, can be stored at -20C. No aliquoting necessary.

Notes

Related products

Review the oxidative stress marker and assay guide to learn about more assays for oxidative stress.

Tested applications

Suitable for: WB

Properties

Storage instructions

Store at -20°C. Please refer to protocols.

Components	200 µl
250X Oxidative Stress Defense WB cocktail	1 x 200µl

Applications

The Abpromise guarantee

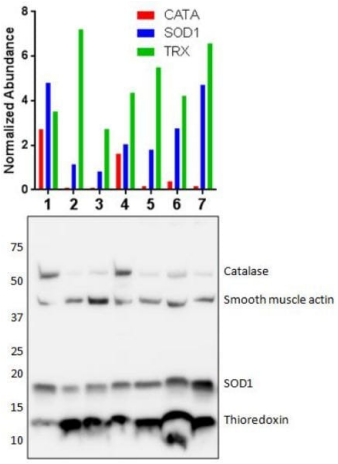
Our Abpromise guarantee covers the use of ab179843 in the following tested applications.

The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

Application	Abreviews	Notes

Application	Abreviews	Notes
WB		Use at an assay dependent concentration. Antibody cocktail should be diluted to 1X in appropriate dilution buffer before use. WB samples should be heated to 95°C for 5 minutes in sample buffer before loading. Suggested dilution buffer is 5% milk/PBS+0.05%Tween 20.

Images



Relative abundances of target proteins normalized to Smooth Muscle Actin control signal.

Densiometric analysis of a western blot using ab179843 was used on various cell types to determine the relative amounts of catalase, superoxide dismutase 1 and thioredoxin.

25 ug of each cell lysate was loaded per lane after heating for 5 minutes at 95°C.

Lane 1: HepG2

Lane 2: HeLa

Lane 3: HDFn

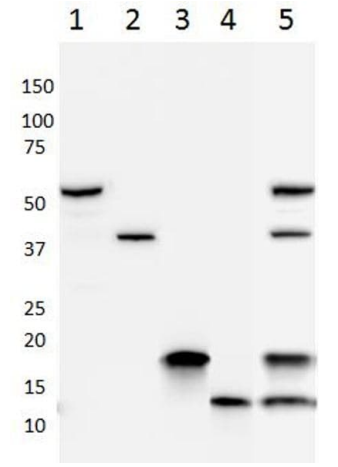
Lane 4: HL60

Lane 5: Jurkat

Lane 6: MCF7

Lane 7: Hek293T

Secondary: HRP-conjugated Anti-Rabbit IgG



All four protein targets resolved separately and in the combined cocktail on HepG2 cell lysate.

WB lysate sample was heated at 95°C for 5 minutes before loading. Performed under reducing conditions.

All blocking and antibody incubation steps were done in 5% milk in PBST.

Developed using the ECL technique.

Exposure time: 1 minute.

Sample: HepG2 Cell Lysate – 25 µg/lane

Lane 1: Anti-Catalase antibody

Lane 2: Anti-Smooth muscle actin antibody

Lane 3: Anti-Superoxide dismutase 1 antibody

Lane 4: Anti-Thioredoxin antibody

Lane 5: ab179843 Oxidative Stress Defense WB Cocktail

Secondary: HRP-conjugated Anti-Rabbit IgG

Please note: All products are "FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC PROCEDURES"

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