

Product datasheet

Total Antioxidant Capacity Assay Kit ab65329

★★★★★ 2 Abreviews 35 References 5 Images

Overview

Product name	Total Antioxidant Capacity Assay Kit
Detection method	Colorimetric
Sample type	Urine, Serum, Plasma, Other biological fluids, Tissue Extracts, Cell Lysate, Cell culture media
Assay type	Quantitative
Assay time	2h 00m
Product overview	Total Antioxidant Capacity Assay Kit ab65329 can measure either the combination of both small molecule antioxidants and proteins, or small molecules alone in the presence of our proprietary Protein Mask.

In the total antioxidant capacity assay protocol, the Cu^{2+} ion is converted to Cu^+ by both small molecule and protein antioxidants. The Protein Mask prevents Cu^{2+} reduction by proteins, enabling the analysis of only the small molecule antioxidants. The reduced Cu^+ ion is chelated with a colorimetric probe giving a broad absorbance peak around 570 nm, proportional to the total antioxidant capacity.

Total antioxidant capacity assay protocol summary:

- add protein mask to samples if only measuring small molecule total antioxidant capacity
- add samples and standards to wells
- add Cu^{2+} solution and incubate for 90 min at room temp
- analyze with microplate reader

Notes Antioxidants play an important role in preventing the formation of, and scavenging of, free radicals and other oxidizing species. There are three categories of antioxidant species: enzyme systems (GSH reductase, catalase, peroxidase, etc.), small molecules (ascorbate, uric acid, GSH, vitamin E, etc.) and proteins (albumin, transferrin, etc.).

Trolox is used to standardize antioxidants, with all other antioxidants being measured in Trolox equivalents. Measurement of the combined non-enzymatic antioxidant capacity of biological fluids and other samples provides an indication of the overall capability to counteract reactive oxygen species (ROS), resist oxidative damage and combat oxidative stress-related diseases.

Related products

Review the [oxidative stress marker and assay guide](#) to learn about more assays for oxidative stress.

Platform Microplate reader

Properties

Storage instructions

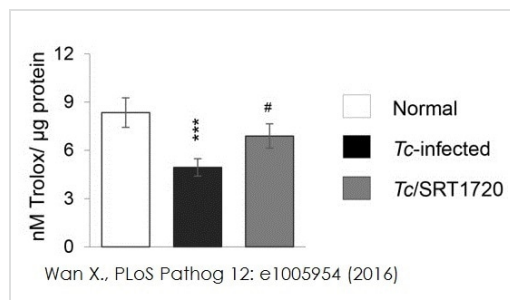
Store at +4°C. Please refer to protocols.

Components	Identifier	100 tests
Assay Diluent	WM	1 x 10ml
Cu ⁺⁺ Reagent	Blue	1 x 0.2ml
Protein Mask	NM	1 x 10ml
Trolox Standard (1 µmol) (Lyophilized)	Yellow	1 vial

Relevance

Antioxidants play an important role in preventing the formation of and scavenging of free radicals and other potentially toxic oxidizing species. There are three categories of antioxidant species: enzyme systems (GSH reductase, catalase, peroxidase, etc.), small molecules (ascorbate, uric acid, GSH, vitamin E, etc.) and proteins (albumin, transferrin, etc.). Different antioxidants vary in their reducing power, and cooperation of all different antioxidants provides greater protection against reactive oxygen or nitrogen radicals than any single compound alone. Therefore, the overall total antioxidant capacity may give more relevant biological information compared to that obtained by the measurement of individual components, as it considers the cumulative effect of all antioxidants present.

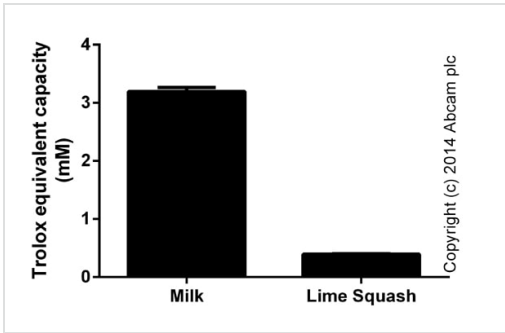
Images



Total antioxidant capacity was determined in mouse cardiac homogenates using Total antioxidant capacity assay kit (ab65329).

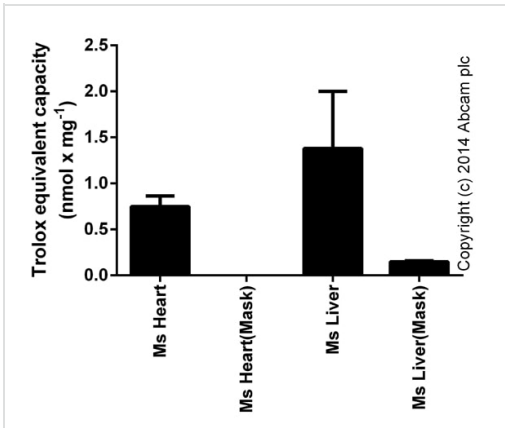
Functional studies - ab65329

Image from Wan X et al., PLoS Pathog 12(10), Fig 5D.
doi: 10.1371/journal.ppat.1005954 Reproduced under the Creative Commons license
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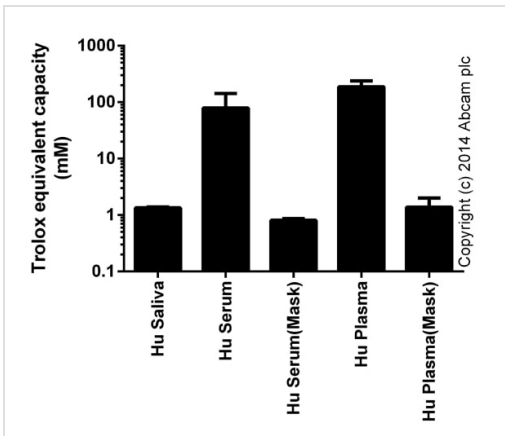
Trolox equivalent capacity measured in milk and concentrated squash. Background signal subtracted, duplicates; +/- SD

Functional assays: TAC (ab65329)



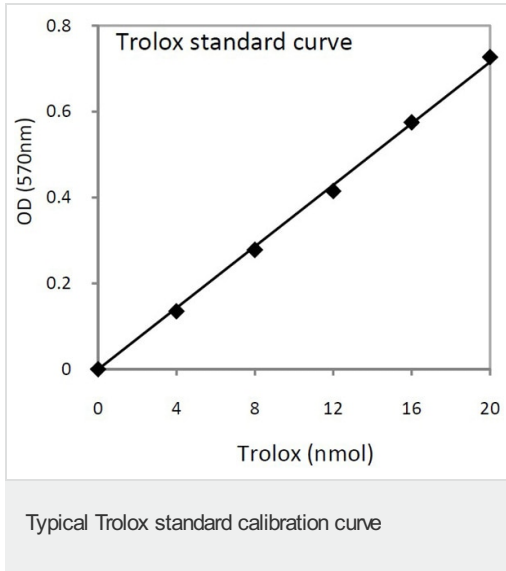
Trolox equivalent capacity measured in mouse tissue lysates, showing quantity (nmol) per mg of extracted protein. Results following blocking of protein activity is shown (Mask). (Duplicates; +/- SD).

Functional assays: TAC (ab65329)



Trolox equivalent capacity measured in biological fluids. Results following blocking of protein activity is shown (Mask). Background signal subtracted, duplicates; +/- SD.

Functional assays: TAC (ab65329)



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