

# GSH+GSSG / GSH Assay Kit (Colorimetric) ab239709

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### Overview

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<b>Product name</b>	GSH+GSSG / GSH Assay Kit (Colorimetric)
<b>Detection method</b>	Colorimetric
<b>Product overview</b>	<p>GSH+GSSG / GSH Assay Kit (Colorimetric) (ab239709) provides a convenient, colorimetric method for analyzing either total glutathione or the reduced form glutathione alone using a microtiter plate reader.</p> <p>The assay is based on the glutathione recycling system by DTNB and glutathione reductase. DTNB and glutathione (GSH) react to generate 2-nitro-5-thiobenzoic acid which has a yellow color. Therefore, GSH concentration can be determined by measuring absorbance at 412 nm.</p> <p>The generated GSSG can be reduced back to GSH by glutathione reductase, and GSH reacts with DTNB again to produce more 2-nitro-5-thiobenzoic acid. Therefore, the recycling system dramatically improves the sensitivity of total glutathione detection.</p> <p>The kit includes the 5-Sulfosalicylic acid (SSA) for the removal of proteins from samples and for the protection of GSH oxidation and g-glutamyl transpeptidase reaction.</p> <p>The kit can quantify glutathione from 1-100 ng/well in a 200 <math>\mu</math>L reaction. For detecting lower glutathione concentrations, such as in blood samples, increasing reaction time will generate stronger signal.</p> <p>The kit can also specifically detect the reduced form of glutathione (GSH) by omitting the glutathione reductase from the reaction mixture. The sensitivity for detecting the reduced form of glutathione (without recycling system) is 100 times lower than detecting the total glutathione.</p>
<b>Notes</b>	<p>This product is manufactured by BioVision, an Abcam company and was previously called K261 Glutathione Colorimetric Assay Kit. K261-100 is the same size as the 100 test size of ab239709.</p>
<b>Platform</b>	Microplate reader

### Properties

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## Storage instructions

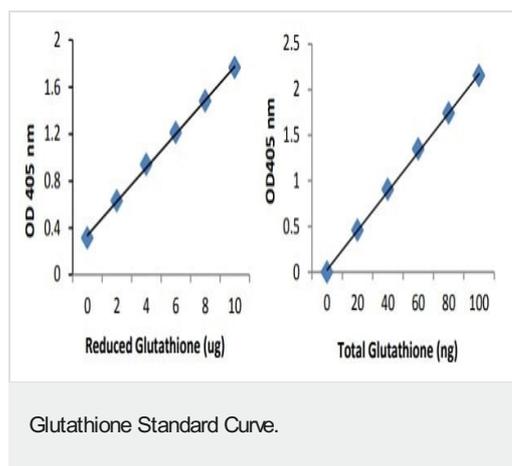
Store at -20°C. Please refer to protocols.

Components	100 tests	2000 tests
Glutathione Reaction Buffer	1 x 100ml	20 x 100ml
Glutathione Reductase	2 x 25µl	40 x 25µl
Glutathione Substrate (DTNB)	2 vials	40 vials
GSH Standard (lyophilized, MW 307)	2 x 1mg	40 x 1mg
NADPH Generating Mix (lyophilized)	2 vials	40 vials
Sulfosalicylic Acid (SSA, 1 gram)	1 unit	20 units

## Relevance

Glutathione is a small peptide composed of three amino acids: cysteine, glutamic acid, and glycine and is present in tissues in concentrations as high as one millimolar. It contains an unusual peptide linkage between the amine group of cysteine and the carboxyl group of the glutamate side chain. Glutathione is involved in detoxification, it binds to toxins, such as heavy metals, solvents, and pesticides, and transforms them into a form that can be excreted in urine or bile. It is also an important antioxidant, helping to maintain the -SH groups of proteins in their reduced form. Chronic functional glutathione deficiency is associated with glucose 6-phosphate dehydrogenase deficiency, immune disorders, an increased incidence of malignancies, and in the case of HIV disease, probably accelerated pathogenesis of the disease. Acute manifestations of functional glutathione deficiency can be seen in those who have taken an overdosage of acetaminophen (paracetamol). This results in depletion of glutathione in the hepatocytes, leading to liver failure and death.

## Images



Various amounts of standard glutathione was added to the glutathione reaction and incubated for 10 min according to the kit instructions. Absorbance was measured at O.D. 405 nm.

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