abcam

Product datasheet

Mitochondrial Stress Test Companion Assay ab243390

4 Images

Overview

Product name	Mitochondrial Stress Test Companion Assay
Detection method	Fluorescent
Sample type	Tissue, Adherent cells, Suspension cells, Purified mitochondria
Assay type	Cell-based
Assay duration	Multiple steps standard assay
Product overview	Mitochondrial Stress Test Companion Assay (ab243390) is used iin conjunction with Mitochondrial Stress Test Complete Assay Kit (ab232857) or Extracellular Oxygen Consumption Assay (ab197243). The companion assay contains all metabolic modulators required to characterise the main parameters of mitochondrial function in live cells. The Oxygen Consumption Assay (HS Method) is a highly flexible 96- or 384-well fluorescence plate reader-based approach, for the direct, real-time analysis of cellular respiration and mitochondrial function. The easy-to-use assay allows measurement of extracellular oxygen consumption rates (OCR) with whole cell populations (both adherent and suspension cells), isolated mitochondria, permeabilized cells and a wide range of 3D cultures including: tissues, small organisms, spheroids, scaffolds and matrixes. The assay is also suitable for measurement of isolated enzymes, bacteria, yeasts and molds. The Extracellular O_2 probe is chemically stable and inert, water-soluble and cell impermeable, making it the ideal and scalable mix-and-measure reagent for use in a wide range of cell culture conditions - all measured using a fluorescence plate-reader. In this assay, Extracellular O_2 probe is quenched by O_2, through molecular collision, and thus the amount of fluorescence signal is inversely proportional to the amount of extracellular O_2 in the sample. Rates of oxygen consumption are calculated from the changes in fluorescence signal over time. The reaction is non-destructive and fully reversible (neither Extracellular O_2 probe nor O_2 are consumed), facilitating measurement of time courses and drug treatments. This is a companion kit to be used in combination with Mitochondrial Stress Test Complete Assay Kit (ab232857) or Extracellular Oxygen Consumption Assay (ab197243); or with Extracellular Oxygen Consumption Reagent (ab197242) together with Mineral Oil High sensitivity (ab243855).

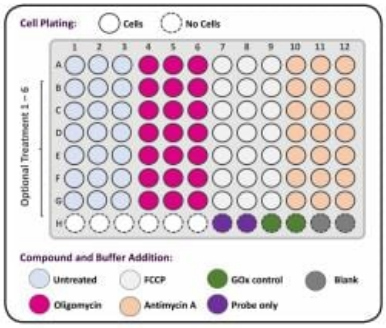
Platform Microplate reader

Properties

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

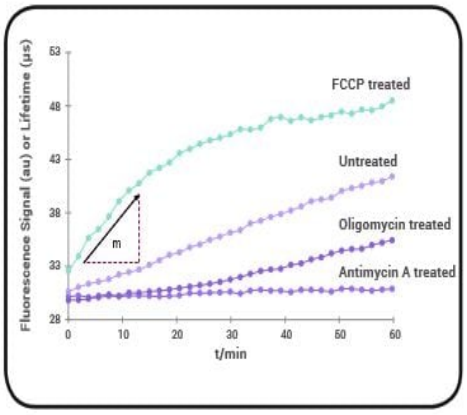
Components	1 x 96 tests
Antimycin A	1 x 3µg
FCCP	1 x 4µg
Glucose Oxidase	1 x 112.5µg
Oligomycin	1 x 10µg

Images



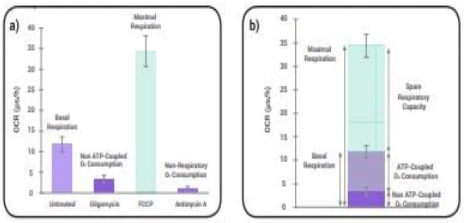
Recommended plate map.

Using this plate map, up to 7 different conditions can be tested simultaneously in triplicate across all treatment conditions.



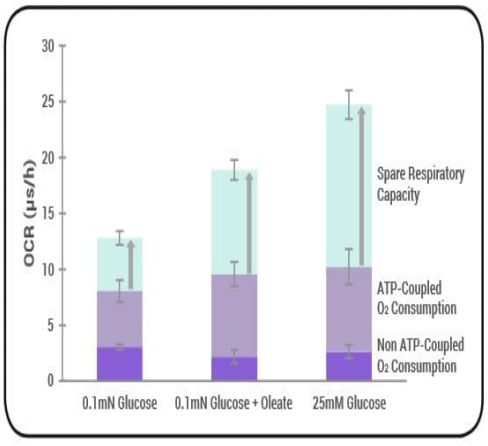
Signal Profiles of HepG2 oxygen consumption obtained using the Mitochondrial Stress Test Complete Assay.

Slopes (m) calculated from the linear portion of these signal profiles are reflective of the OCR under the conditions imposed by the kit components and are used to determine the key characteristics of aerobic respiration.



Full characterization of mitochondrial function using the Mitochondrial Stress Test Complete Assay.

a) The OCR (m) from the linear portion of the signal profile from each Stress Test condition reflect Basal Respiration, Non ATP-Coupled Oxygen Consumption, Maximal Respiration and Non Respiratory Oxygen Consumption. ATP-Coupled Oxygen Consumption and Spare Respiratory Capacity are calculated from these values.
b) The contribution of each of these discrete metabolic processes to the Maximal Respiration can be conveniently visualized producing a detailed picture of aerobic metabolism.



Basal Respiration and Maximal Respiration in HepG2 cells measured in different nutrient conditions.

In low glucose medium, Spare Respiratory Capacity is low, but significantly increases in the presence of high glucose concentrations or 150 µM Oleate, due to the provision of reducing equivalents to fuel ETC activity.

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