abcam

Product datasheet

Extracellular Oxygen Consumption Assay ab197243

18 References 3 Images

Overview

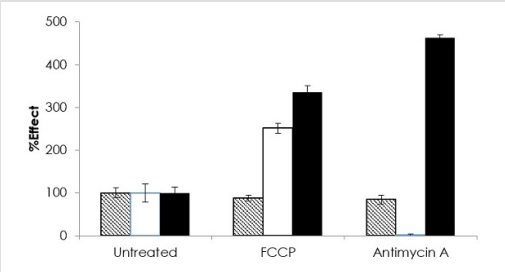
Product name	Extracellular Oxygen Consumption Assay
Detection method	Fluorescent
Sample type	Tissue, Adherent cells, Suspension cells, Purified mitochondria
Assay type	Cell-based
Assay time	1h 30m
Product overview	Extracellular Oxygen Consumption Assay Kit ab197243 is a mix-and-read, 96-well fluorescence plate reader assay for the real-time kinetic analysis of extracellular oxygen consumption rates (OCR). The oxygen consumption rate is a measure of the cellular respiration rate, and of mitochondrial function. The assay is optimized for isolated mitochondria and cell cultures, and can be used with tissues, enzyme preparations, and small organisms. The fluorescent dye used in this assay kit is quenched by oxygen. The dye excites at 360-380 nm (max 380) and emits at 630-680 nm (max 650). It is also available separately as ab197242. In the assay, an oil layer is added on top of the assay medium to limit diffusion of oxygen into the assay medium. As mitochondrial respiration depletes the oxygen within the assay medium, quenching of the fluorescent dye is reduced, and the fluorescence signal increases proportionately. The reaction is non-destructive and fully reversible (the oxygen sensitive dye is not consumed) enabling assay time courses and drug treatments.
Notes	Learn more about the full range of assays to measure glycolysis, oxygen consumption, fatty acid oxidation and metabolic flux in live cells. Or review the full metabolism assay guide for other assays for metabolites, metabolic enzymes, mitochondrial function, and oxidative stress.
Platform	Microplate reader

Properties

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

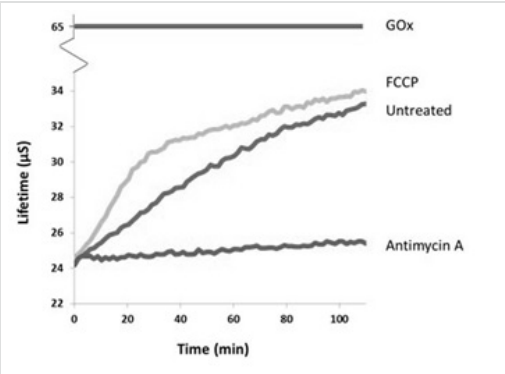
Components	96 tests	4 x 96 tests
Extracellular O2 Consumption Reagent	1 vial	4 vials
High Sensitivity Oil	1 x 15ml	4 x 15ml

Images



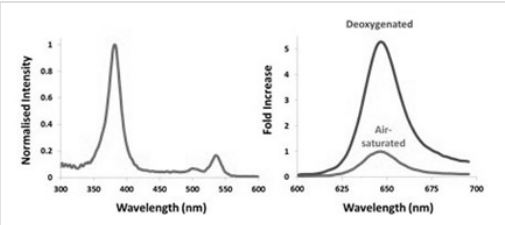
Simultaneous quantification of mitochondrial respiration and glycolytic flux

Cellular Energy Flux for HepG2 cells (seeded at 65,000 per well), treated with a combination of drug compounds modulating the ETC (Antimycin A [1 µM] and FCCP [2.5 µM]), shown as a percentage relative to untreated control cells. Comparative measurements were taken with Extracellular Oxygen Consumption Assay (ab197243) (white column) and Glycolysis Assay [Extracellular acidification] (ab197244) (black column) show the shift between mitochondrial respiration and glycolysis and the cellular control of energy (ATP; measured 1h post-treatment using Luminescent ATP Detection Assay kit (ab113849) (striped column)).



Typical lifetime profile

Typical Lifetime profile of Extracellular O_2 Consumption Assay for adherent cells, treated with different ETC compounds, including Antimycin A (recommended as a Negative Control). The effect of Glucose Oxidase as a positive Signal Control is illustrated schematically.



Excitation and emission spectra

Excitation and emission spectra of Extracellular O_2 Consumption Reagent. Left panel shows normalized excitation (Ex = 360-400nm; Peak 380nm). Right panel shows emission (Em = 630 - 680nm; Peak 650nm) in oxygenated and deoxygenated conditions.

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