

MitoXpress™ product specifications – extracellular O₂ assays

PRODUCT NAME

MitoXpress™

PRODUCT NUMBERS

MitoXpress-Xtra-KI; MitoXpress-1X,

ASSAY PRINCIPLE

MitoXpress™ is a porphyrin-based, water soluble, phosphorescent, oxygen sensitive probe that is used in MitoXpress-Xtra assays to measure extracellular oxygen consumption by isolated mitochondria, cell populations, small organisms, tissues and enzymes. The assay is based on the ability of O₂ to quench the excited state of the MitoXpress probe. As the test material respire, O₂ is depleted in the surrounding solution/environment, which is seen as an increase in probe phosphorescence signal. The MitoXpress-Xtra assay is non-chemical and reversible, a decrease in oxygen consumption (an increase in O₂ levels) is seen as a decrease in probe signal.

ASSAY FORMATS

Easy 'mix and measure' plate-based assay using standard 96/384 well plates. Just add MitoXpress oxygen probe to sample, seal with mineral oil and measure on conventional or time-resolved fluorescent plate readers.

PRODUCT DESCRIPTION

The MitoXpress oxygen probe is supplied as a dry, stable, soluble reagent that is easily reconstituted in water for simple dispensing with a pipette. One vial of MitoXpress oxygen probe per 96 well plate.

The MitoXpress oxygen probe for plate-based extracellular analysis is provided in two different formats as required:

1. MitoXpress-1X; comprises 1X quantity of MitoXpress oxygen probe per vial
2. MitoXpress-Xtra-Ki, complete kit: contains 1 vial MitoXpress-1X and 12 ml of mineral oil

BASIC CHARACTERISTICS

MitoXpress™ probe is a chemically stable and inert, biopolymer-based, cell impermeable probe. The probe is excitable at 340-390 or 535 nm and emits at 630-680 nm, Optimal filter combinations are 340 nm for excitation and 642 nm for emission (standard for Victor™ reader).

PROBE PREPARATION

To prepare a stock solution of MitoXpress™ probe, add 1 ml of water, assay buffer, or medium to the vial provided. The recommended working dilution for the probe is 1:15 (i.e. 10 µL per 150 µL of sample for a 96-well plate).

PHOSPHORESCENT MEASUREMENTS

The MitoXpress™ probe is measured with prompt or time-resolved fluorescence (TR-F) readers, monochromator or filter-based. Optimal wavelengths are 380 nm for excitation and 650 nm for emission, excitation at 532 nm can also be used. For TR-F readers, optimal delay and gate times are 30 µs and 100 µs respectively. Probe signals should be at least 3 times above blank signal. While compatible with all plate types, black border clear bottom plates give optimal signal to noise ratios. MitoXpress™ probe response to oxygen is temperature dependent, so good temperature control of the plate during the measurement is important.

See application notes at www.luxcel.com for detailed assay protocols

END USER REFERENCES

- (1). Analysis of Mitochondrial Function Using Phosphorescence Oxygen Sensitive Probes. Y. Will, J. Hynes, V. I. Ogourtsov, and D. B. Papkovsky. *Nature Protocols*. 2007; 1(6): 2563-2572.
- (2). Strategies to reduce late-stage drug attrition due to mitochondrial toxicity. J. A. Dykens, L. D. Marroquin and Y. Will. *Expert Rev Diagn*. 2007; 7(2): 161-175.

- (3). Investigation of Drug-induced Mitochondrial Toxicity using Fluorescence-based Oxygen-sensitive Probes J. Hynes, L. Marroquin, V. I. Ogourtsov, K. N. Christiansen, G. J. Stevens D. B. Papkovsky and Y. Will Toxicological Science. 2006; 92(1):186-2000

MitoXpress materials safety data sheet

PRODUCT NUMBERS

MitoXpress-Xtra-Ki
MitoXpress-1X

UNIT SIZE

1 vial of MitoXpress probe per product

MITOXPRESS MANUFACTURE

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COMPOSITION

MitoXpress probe: dry, water-soluble material comprising a phosphorescent dye conjugated to an inert biopolymer.

Loading reagent: a solution of synthetic biopolymer in organic solvent (dimethylsulfoxide).

HANDLING AND STORAGE

Dry material: store at +4°C (until the indicated expiry date).

Reconstituted product (aqueous stock): store at -20°C aliquoted, avoid freeze/thaw cycles.

Diluted probe stock: use on the same day.

Protect products from prolonged exposure to light, may be exposed to light for short time periods.

OTHER INFORMATION

This material is not considered as hazardous, it is not present above 1%, nor is it a carcinogen above 0.1% as defined in 29 CFR 1910.1200, the OSHA Hazard Communication Standard. Therefore, a Material Data Sheet is not required. We recommend treating all chemicals with caution.

This material is sold for research purposes only and is not required to appear in TSCA inventory. It is not intended for food, drug, household, agricultural or cosmetic use. It must be supervised by a technically qualified individual experienced in handling potentially hazardous chemicals. The above information is correct to the best of our knowledge. Users should make independent decisions regarding completeness of the information based on all sources available. Luxcel Biosciences shall not be liable for any damage resulting from handling or contact with the above product

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