ATP Red

Catalog# / Size	421944 / 1 mg
Regulatory Status	RUO
Description	ATP Red is a cell-permeable ATP sensor that localizes to mitochondria and produces fluorescence upon binding to ATP, rapidly responding to fluctuations in mitochondrial ATP levels. It provides a direct and simplified approach to measuring ATP levels in live cells by flow cytometry or live cell imaging. ATP Red allows for the discrimination of rare sub-populations while interrogating important cellular metabolic pathways, such as glycolysis and oxidative phosphorylation. This method is rapid – results can be obtained in less than an hour and yields an accurate measurement of cellular ATP production and its dependency on metabolic pathways of interest.

Product Details

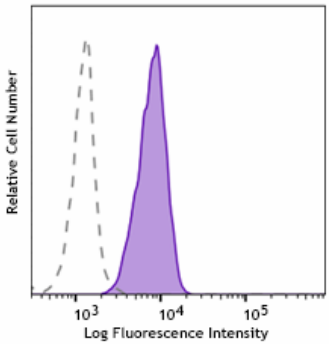
Verified Reactivity	Human, Mouse
Formulation	1 vial of lyophilized ATP Red, 1 mg
Preparation	Bring vial to room temperature. To make a 10 mM stock solution, add 178 µL of DMSO to the vial of 1 mg ATP Red and mix thoroughly until completely dissolved. **Note:** Store unused ATP Red stock solution in a tightly sealed vial in the dark at room temperature. Stock solution is stable for at least 12 months.
Storage & Handling	2 - 8°C
Application	FC - Quality tested Live cell imaging - Verified
Recommended Usage	Please refer to the detailed protocol in the application notes section.
Application Notes	Components: 1 vial of 1 mg lyophilized ATP Red, Molar Mass: 561.48 g/mol Storage: Upon receipt, store lyophilized probe at 2 - 8°C and protected from light. Upon reconstitution, store unused ATP Red stock solution in a tightly sealed vial in the dark at room temperature. Stock solution is stable for at least 12 months. Imaging Guidelines: Ex/Em = 590/620 nm Fluorescence microscope filter set: Cyanine3/TRITC Flow Guidelines: Analysis in PE or similar channel (585/42 or 575/25 or 570/40 filter set) Protocol: 1. Grow cells in a tissue culture vessel with a coverslip bottom in desired media or prepare cell suspension containing 0.25 - 2.5 x10^6 cells in 100 - 500 µL of desired media or Cell Staining Buffer (Cat. No. 420201). 2. Optional: Fix cells with Fixation Buffer (Cat. No. 420801), if desired. 3. Add ATP Red at a final concentration of 5 - 10 µM along with desired antibodies. 4. Incubate cells at room temperature or 37°C for 15 minutes (or up to 30 minutes for live cell imaging). 5. Optional: Wash cells with PBS or equivalent buffer. If only staining with ATP Red, this washing step can be skipped. 6. Proceed directly to analysis.

Antigen Details

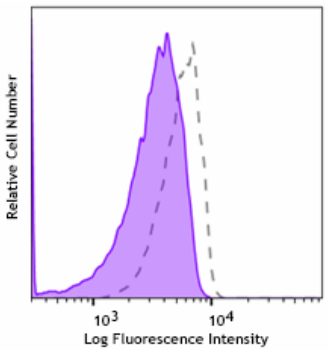
Distribution	Mitochondria

Biology Area	Adaptive Immunity, Cell Biology, Cell Proliferation and Viability, Immunology, Innate Immunity, Mitochondrial Function
Molecular Family	Mitochondrial Markers
Antigen References	1. Wang L, *et al*. 2016. *Angew Chem Int Ed Engl*. 55:1773-6.
Gene ID	NA

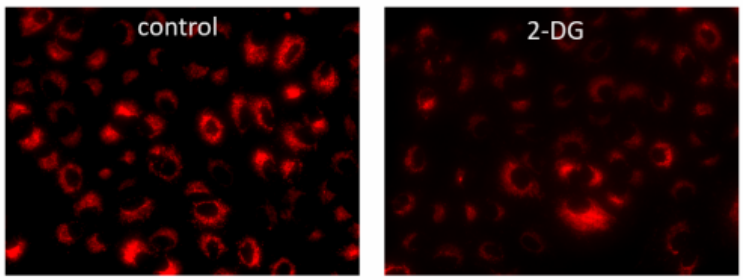
Product Data



Human peripheral blood mononuclear cells were stimulated with Ultra-LEAF™ Purified anti-human CD3 (clone UCHT1) and Ultra-LEAF™ Purified anti-human CD28 (clone CD28.2) antibodies for 24 hours (filled histogram) or left unstimulated (open histogram) and stained with ATP Red. Data shown were gated on $CD3^+$ lymphocytes.



Human peripheral blood mononuclear cells were stimulated Ultra-LEAF™ Purified anti-human CD3 (clone UCHT1) and Ultra-LEAF™ Purified anti-human CD28 (clone CD28.2) antibodies for 24 hours. Cells were then treated with Oligomycin A (an ATP synthase inhibitor) (filled histogram) or left untreated (open histogram) and stained with ATP Red. Data shown were gated on $CD3^+$ lymphocytes.



A549 cells grown on coverslips were treated with 2-Deoxy-D-Glucose (2-DG) (right) for 30 minutes at 37°C or left untreated (control) (left) and subsequently stained with ATP Red for 15 minutes. Cells were then washed with PBS and imaged using a 40X objective.

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