

Tissue Mitochondria Isolation Kit

Cat. No.: O1509533 | Pack size: 50T | Storage: Room temperature, Store at -20°C

Product Description

Mitochondria are the main site of cellular respiration. The energy required for cellular activities is mainly supplied by oxidation occurring within mitochondria. The key to mitochondrial isolation is to maintain mitochondrial integrity and purity, which can be achieved by differential centrifugation: low-speed centrifugation to remove nuclei and cell debris first, followed by high-speed gradient centrifugation to isolate mitochondria.

Tissue Mitochondria Isolation Kit is designed for the rapid and convenient isolation of mitochondria from animal tissues. During isolation, cytosolic proteins depleted of mitochondria can also be obtained, which can be used to analyze the release of mitochondrial proteins (such as cytochrome C) into the cytoplasm. Most isolated mitochondria maintain intact inner and outer membranes and physiological functions (e.g., for mitochondrial membrane potential detection). The isolated proteins can be used for protein analysis including SDS-PAGE, Western blotting, and two-dimensional electrophoresis. This kit is suitable for extracting mitochondria from soft animal tissues (e.g., brain, liver) and hard tissues (e.g., heart, skeletal muscle). This kit is for research use only and is not intended for clinical diagnosis or other purposes.

Components

Catalog No.	Component	50T	Storage
O1509533A	Mitochondria Lysis Buffer	100 mL	-20°C
O1509533B	Mitochondria Stock Buffer	10 mL	-20°C
O1509533C	Protein Stock Buffer (5×)	10 mL	RT
O1509533D	PMSF (100×)	1.5 mL	-20°C

Materials Provided by User

1. Refrigerated centrifuge, homogenizer.
2. PBS.

Protocol (For Reference Only)

1. Washing: Take fresh tissue (frozen tissue is not recommended). Weigh 50-100 mg rapidly, wash once with pre-cooled PBS, and cut into tissue fragments of approximately 3 mm² on ice.
2. Homogenization and Lysis: Add 10 volumes of pre-cooled Mitochondria Lysis Buffer (if cytosolic protein is required, add PMSF in advance to a final concentration of 1×). Place in a Dounce homogenizer on ice and homogenize 10-20 times. The number of homogenization cycles varies with different tissues or homogenizers and should be optimized by the user.
3. Centrifugation: Centrifuge at 600×g, 4°C for 5 min to remove nuclei, unbroken cells and large membrane debris. Note: For higher mitochondrial purity, centrifuge at 2000×g for 3 min, but the mitochondrial yield from the same amount of cells will be reduced.
4. Transfer the supernatant to a clean centrifuge tube. Centrifuge at 12000×g, 4°C for 10 min. Note: For higher mitochondrial purity, centrifuge at 6000×g for 10 min, but the mitochondrial yield from the same amount of cells will be reduced.
5. Discard the supernatant; the pellet is mitochondria. If cytosolic protein depleted of mitochondria is desired, collect the supernatant in this step without disturbing the pellet. Then centrifuge the collected supernatant at 12000×g, 4°C for 10 min. The resulting supernatant is cytosolic protein without mitochondria.

6. Storage

Discard the supernatant and resuspend the pellet in an appropriate buffer. For mitochondrial enzyme activity or functional analysis: resuspend the mitochondrial pellet in Mitochondria Stock Buffer. For mitochondrial protein analysis: store the obtained cytosolic protein in 1× Protein Stock Buffer by mixing cytosolic protein:Protein Stock Buffer (5×) at a ratio of 1:4. For two-dimensional electrophoresis: use an appropriate storage solution.

Specifications

Attribute	Value
Specifications & Purity	BioReagent, for protein analysis, for western blot, for PAGE
Stability And Storage	Each component has a shelf life of 1 year under corresponding storage conditions. O1509533A, O1509533B, and O1509533D: Store at -20°C long term (12 months). O1509533C: Store at room temperature long term (12 months).
Storage Conditions	Room temperature, Store at -20°C

Attribute	Value
Shipped In	Ice chest + Ice pads. This product requires cold chain shipping. Ground and other economy services are not available.

Contact & Global Offices

Whether you have a technical question, need help with a quotation, or want to inquire about an order, our regional teams are ready to assist. Please contact the office for your region; for general inquiries, the North American office is the corporate primary.

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Limitations & Disclaimer

- For Research Use Only (RUO). Not for use in human or animal diagnostics, therapeutics, or in vivo applications. Not for food, cosmetic, or household use.
- This product is not a CE-marked in vitro diagnostic device under IVDR (EU) 2017/746 and is not an FDA-cleared device under 21 CFR. Use is restricted to verified businesses, institutions, and qualified professionals for research and development purposes.
- Where any kit component is classified as hazardous under CLP (EC) 1272/2008 or OSHA HCS (29 CFR 1910.1200), the product Safety Data Sheet (SDS) takes precedence over this document for handling, storage, and disposal information.
- Performance depends on sample type, sample condition, handling, and operator technique. Users are responsible for validating the product for their specific application.
- Aladdin product labels, SDS, COA, and approved specifications take precedence over this document. If product formulation, label, SDS, storage conditions, pack size, or quality specifications change, this document must be reviewed and reissued.