

Product Information

ANTI-UCP3

produced in rabbit, affinity isolated antibody

Product Number **U7757**

Product Description

Anti-Uncoupling Protein 3 (UCP3) is developed in rabbit using a synthetic peptide corresponding to amino acid residues 254–267 of human UCP3, with N-terminal lysine added, conjugated to keyhole limpet hemocyanin (KLH). The corresponding sequence in rat and mouse UCP3 differ by 4 and 3 amino acids, respectively. The antibody is affinity-purified using the immunogen peptide immobilized on agarose.

Anti-UCP3 specifically recognizes UCP3 by immunoblotting (~34 kDa). Additional weak bands may be detected in some preparations of brown adipose tissue (BAT) extracts by immunoblotting. Staining of the UCP3 band is specifically inhibited with the immunizing peptide. The product is also useful for the detection of UCP3 by immunohistochemistry. The epitopes recognized by the antibody are compatible with routine formalin-fixation and paraffin-embedding. The antibody reacts with UCP3 of human, rat, and mouse origin and shows no cross-reactivity with UCP1 and UCP2.

Mitochondrial oxidative phosphorylation makes possible ATP synthesis using the energy available from substrate oxidation at the respiratory chain. These processes are coupled through the proton electrochemical potential gradient generated during the transfer of electrons from the substrate to oxygen.

The uncoupling proteins (UCPs) are mitochondrial inner membrane proteins that are considered as transporters functioning as enzymatic uncouplers of oxidative phosphorylation. They are capable of returning protons pumped by the respiratory chain to the mitochondrial matrix.¹⁻³ Uncoupling proteins currently comprise UCP1, 2, 3, 4, and 5.

UCP1 is exclusively expressed in BAT in rodents and in neonates. UCP2 is widely expressed, at varying levels, in human and rodent tissues including white adipose tissue (WAT), BAT, muscle, heart, and brain. UCP3 displays two forms, a long mature, UCP3L, and a short, UCP3S, form. It is preferentially expressed in skeletal muscle and in BAT, and may be regulated by dietary and hormonal manipulations.⁴⁻⁶ Current evidence suggests UCP3 is an active proton transporter, regulated by CoQ (ubiquinone), fatty acids, or nucleotides.^{7,8} UCP4 is preferentially expressed in brain and UCP5 is highly abundant in brain and testis.

Reagent

Anti-UCP3 is supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 1% BSA, and 15 mM sodium azide.

Antibody Concentration: 1.0–1.5 mg/mL

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

For continuous use, store at 2–8 °C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing is not recommended. Storage in “frost-free” freezers is also not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilutions should be discarded if not used within 12 hours.

Product Profile

A minimum working dilution of 1:1,000 is determined by immunoblotting using an extract of 293T cells expressing recombinant human UCP3.

A minimum working dilution of 1:3,000 is determined by indirect immunoperoxidase staining of protease-digested, formalin-fixed, paraffin-embedded sections of human and mouse skeletal muscle.

Note: In order to obtain best results in different techniques and preparations, it is recommended to determine optimal working concentration by titration test.

References

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