Datasheet for ABIN2345124

# Lipid Extraction Kit (Chloroform-Free)

2 Publications

Go to Product page

## Overview

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| Quantity: | 50 preparations |
| Application: | Purification (Purif) |

## Product Details

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| Characteristics: | Lipid Extraction Kit isolates total lipids by organic extraction, but circumvents the above disadvantages by extracting lipids to an upper organic phase (making it amenable to high throughput extraction) that is chloroform free. A crude lipid source such as serum or tissue culture cell pellet is resuspended in a proprietary alcohol. After adding a proprietary organic compound, the mixture is centrifuged to gravitationally separate the phases. The recovered upper organic phase is then dried and resuspended for downstream lipid analysis. Each kit provides sufficient reagents to isolate up to 50 preps based on a 100 µL sample size. Larger sample sizes may be used (see Table 1) yielding proportionally fewer preps per kit. |
| Components: | 1. Lipid Extraction Reagent A : One 25 mL amber glass bottle.<br>2. Lipid Extraction Reagent B : One 75 mL amber glass bottle.<br>3. Lipid Extraction Reagent C : One 25 mL bottle. |
| Material not included: | 1. Glass tubes, 15 mL conical tubes, or microcentrifuge tubes<br>2. 10 µL to 1000 µL adjustable single channel micropipettes with disposable tips<br>3. 50 µL to 1000 µL adjustable multichannel micropipette with disposable tips<br>4. Multichannel micropipette reservoir<br>5. Phosphate buffered saline (PBS)<br>6. Tube vortexer<br>7. Organic solvent (such as chloroform, butanol, or cyclohexane) |

## Target Details

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| Background: | Lipids are a diverse group of molecules that include monoglycerides, diglycerides, trigylcerides, fats, sterols, and others. Not only do lipids define and preserve cellular membrane integrity, but they are also involved in cellular processes such as membrane trafficking, signal transduction, apoptosis, and energy storage. Perturbation in the metabolism of lipids has been linked to many diseases such as cancer, diabetes, Alzheimer's disease, and coronary heart disease. In order to study lipids, they must often be extracted first from tissues or cultured cells. Traditionally, organic extraction by the Folch method (Ref. 1) has been preferred, but this method has several disadvantages. First, it extracts lipids to a bottom organic phase, forcing penetration of the upper protein-containing phase during purification and causing contamination of lipid samples. As a result, low purity lipid samples can hamper downstream lipid analysis by clogging instruments such as high pressure liquid chromatographs (HPLCs). In addition, the Folch method uses chloroform as the organic phase solvent. Long-term exposure to chloroform by inhalation has resulted in effects on the liver such as hepatitis and jaundice. Furthermore, chloroform has been demonstrated to be carcinogenic in animals, causing in an increase in kidney and liver tumors. In fact, the United States Environmental Protection Agency (EPA) has classified chloroform as a Group B2, probable human carcinogen. |

## Application Details

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| Application Notes: | Optimal working dilution should be determined by the investigator. |
| Sample Preparation: | • Plasma: Collect blood with an anticoagulant such as citrate, EDTA, heparin, or oxalate and mix by inversion. Centrifuge the blood at 1000 x g at 4 °C for 10 minutes. Collect plasma supernatant without disturbing the white buffy layer. Samples should be extracted immediately or may be stored at -80 °C.<br>• Serum: Collect blood in a tube with no anticoagulant. Allow the blood to clot at room temperature for 30 minutes. Centrifuge at 2500 x g for 20 minutes. Remove the yellow serum supernatant without disturbing the white buffy layer. Samples should be extracted immediately or may be stored at -80 °C.<br>• Cultured Cells: Pellet 5-10 x 106 cells at 1000 x g for 5 minutes. Wash cells once with 1X PBS, and resuspend final cell pellet with 100 µL 1X PBS. Perform the extraction as described in the kit protocol below.<br>• Tissues: Carefully mince the tissue into small fragments with a scalpel/razor blade and weigh in a 50 mL conical tube. Add PBS to a final tissue concentration of 2 mg/mL. Homogenize the tissue at 4 °C. Perform the extraction from the whole tissue homogenate as described in the kit protocol below. |
| Restrictions: | For Research Use only |

## Handling

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| Storage: | RT |
| Storage Comment: | Store the entire kit at room temperature. To avoid possible leakage store bottles upright. |

## Publications

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| Product cited in: | Tyszka-Czochara, Konieczny, Majka: "Caffeic Acid Expands Anti-Tumor Effect of Metformin in Human Metastatic Cervical Carcinoma HTB-34 Cells: Implications of AMPK Activation and Impairment of Fatty Acids De Novo Biosynthesis." in: **International journal of molecular sciences**, Vol. 18, Issue 2, (2017) (PubMed).<br><br>Pamir, Liu, Irwin, Becker, Peng, Ronsein, Bornfeldt, Duffield, Heinecke: "Granulocyte/Macrophage Colony-stimulating Factor-dependent Dendritic Cells Restrain Lean Adipose Tissue Expansion." in: **The Journal of biological chemistry**, Vol. 290, Issue 23, pp. 14656-67, (2015) (PubMed). |

 