Product Datasheet

Endoplasmic Reticulum Enrichment Extraction Kit
NBP2-29482

Unit Size: 1 Kit

Storage of components varies. See protocol for specific instructions.

Publications: 19

Protocols, Publications, Related Products, Reviews, Research Tools and Images at:
www.novusbio.com/NBP2-29482

Updated 8/6/2019 v.20.1

Earn rewards for product reviews and publications.
Submit a publication at www.novusbio.com/publications
Submit a review at www.novusbio.com/reviews/destination/NBP2-29482
# Product Information

## Unit Size
- 1 Kit

## Concentration
- Concentration is not relevant for this product. Please see the protocols for proper use of this product.

## Storage
- Storage of components varies. See protocol for specific instructions.

# Product Description

## Description
Isolating the ER may seem difficult due to its size and complex association with other components of the cytosol. The Endoplasmic Reticulum Enrichment Kit is a key tool that provides the necessary reagents together with an optimized protocol required to gently isolate and enrich for ER from tissues.

## Kit Components
- 5X Isosmotic Homogenization Buffer (30 mL),
- 1X Suspension Buffer (30 mL),
- 10X PBS (2 x 50 mL),
- 5X Calcium Chloride Solution (60 mL),
- 100X Protease Inhibitor Cocktail (2 x 0.75 mL)

## Notes
Additional Reagents/Equipment required but not provided:
- Sterile water
- Standard balance
- High-speed centrifuge (Beckman GS-15R centrifuge or equivalent)
- Beckman Avanti J30I centrifuge with JS24 rotor or equivalent
- Compatible centrifuge tubes
- Glass homogenizer (15-mL Wheaton tube and Pestle or equivalent for 1 gram of tissue sample)
- Microcentrifuge tubes

# Product Application Details

## Applications
- Western Blot

## Recommended Dilutions
- Western Blot

## Application Notes
The kit is routinely tested using 0.5 gram of freshly isolated mouse liver tissue as the starting material. We typically get the following yields:
- Total ER fraction: 350 uL (12 mg/mL = 4.2 mg)
- Rough ER fraction: 300 uL (9 mg/mL = 2.7 mg)

These yields are based on using the 0.5 gram starting material for either isolating the Total ER fraction or the Rough ER fraction. If the starting material is divided at Step C and both the Total and Rough ER fractions are isolated, then yields will be approximately 1/2. Please note that all yields are approximate and may vary depending on the tissue type used and other variables. Use in Western blot reported in scientific literature (PMID 23904601).
Endoplasmic Reticulum Enrichment Extraction Kit [NBP2-29482] - This kit is routinely tested and standardized using 0.5 gram of mouse liver tissue.

Endoplasmic Reticulum Enrichment Extraction Kit [NBP2-29482] - ATF6 (3 ug/mL) and GAPDH (0.25 ug/mL). ATF6 is an ER stress-regulated transmembrane transcription factor. The blots were probed with ATF6, stripped and reprobed with GAPDH. Full-length ATF6 was detected in all 3 lanes, and was enriched in the ER fractions. GAPDH was detected in the whole lysate and total ER fraction, but not in the rough ER fraction. ATF6* may represent partial or cleaved/active ATF6.


<table>
<thead>
<tr>
<th>Cellular compartments</th>
<th>Bonferroni P-value</th>
<th>Proteins</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cytosolic part</td>
<td>0.0002</td>
<td>Erp, CypD4, ErpD4, SedDp3, Ctx, Tnp, CypD8, AcoT, AcoH, CypD8, Sdh, Nduf, AcoT, AcoH, CypD8, Sdh, Nduf, AcoT, AcoH</td>
</tr>
<tr>
<td>Mitochondrion</td>
<td>0.0007</td>
<td>ErpD4, Ctx, AcoT, AcoH, AcoT</td>
</tr>
<tr>
<td>Peroxisomes</td>
<td>0.0007</td>
<td>ErpD4, Ctx, AcoT, AcoH, AcoT</td>
</tr>
<tr>
<td>Endoplasmic reticulum</td>
<td>0.0002</td>
<td>CypD4, Sdh, CypD8, Nduf, Ctx, CypD8, Tnp, CypD8, CypD8</td>
</tr>
<tr>
<td>Microsome</td>
<td>0.0007</td>
<td>CypD4, Sdh, CypD8, CypD8, CypD8</td>
</tr>
<tr>
<td>Biological pathways</td>
<td>Bonferroni P-value</td>
<td>Proteins</td>
</tr>
<tr>
<td>Fatty acid and lipid</td>
<td>0.0137</td>
<td>CypD8, CypD8, ErpD4, AcoT, Ctx, CypD8, CypD8</td>
</tr>
</tbody>
</table>

www.novusbio.com  technical@novusbio.com
<table>
<thead>
<tr>
<th>Publications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sanvee GM, Bouitbir J, Krachenbuhl S</strong> Insulin prevents and reverts simvastatin-induced toxicity in C2C12 skeletal muscle cells Sci Rep May 15 2019 12:00AM [PMID: 31092879] (WB, Mouse)</td>
</tr>
<tr>
<td><strong>Aumailley L, Roux-Dalvai F, Kelly I et al.</strong> Vitamin C alters the amount of specific endoplasmic reticulum associated proteins involved in lipid metabolism in the liver of mice synthesizing a nonfunctional Werner syndrome (Wrn) mutant protein. PLoS ONE. Mar 1 2018 12:00AM [PMID: 29494634] (Mouse)</td>
</tr>
<tr>
<td>Details: The Novus ER enrichment kit was used to collect endoplasmic reticulum fractions from mouse livers</td>
</tr>
<tr>
<td>Details: ER enrichment kit was used for isolation of Endoplasmic Reticulum from root tips of soybean (see full text of this publication for detailed &amp; modified protocol).</td>
</tr>
<tr>
<td>Details: ER enrichment kit was used for the isolation of Endoplasmic Reticulum from PC 12 (rat adrenal pheochromocytoma) D cells which were pre-incubated with recombinant protein carrying X (G1-ps-Halo(X)-KDEL; 6.0 uM).</td>
</tr>
<tr>
<td>Details: Endoplasmic Reticulum Enrichment Extraction Kit was used for extraction of ER fractions from wild type and Wrdelta-hel/delta hel homozygous animals on the pure C57BL/6 genetic background. The tissues were homogenized in RIPA buffer and see full text for detailed protocol.</td>
</tr>
<tr>
<td><strong>Oxidase N, Fibrosis IC, Pathways S.</strong> NADPH Oxidase 4 Induces Cardiac Fibrosis and Hypertrophy Through Activating Akt/mTOR and NFkB Signaling Pathways Circulation. 2014 Dec 12 [PMID: 25589557] (WB)</td>
</tr>
<tr>
<td><strong>Pandey Nihar R, Zhou Xun, Qin Zhaohong et al.</strong> The LIM domain only 4 protein is a metabolic responsive inhibitor of protein tyrosine phosphatase 1B that controls hypothalamic leptin signaling. J Neurosci. 2013 Jul 31 [PMID: 23904601] (WB)</td>
</tr>
</tbody>
</table>
Procedures

MSDS (NBP2-29482)

Hazard Information
Contents: PIC in 200 Proof Ethyl Alcohol
CAS No.: 64-17-5

Potential Acute Health Effects:
Hazardous in case of skin contact (irritant), of eye contact (irritant), of inhalation. Slightly hazardous in case of skin contact (permeator), of ingestion.

Potential Chronic Health Effects:
Slightly hazardous in case of skin contact (sensitizer). CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast. TERATOGENIC EFFECTS: Classified PROVEN for human. DEVELOPMENTAL TOXICITY: Classified Development toxin [PROVEN]. Classified Reproductive system/toxin/female, Reproductive system/toxin/male [POSSIBLE]. The substance is toxic to blood, the reproductive system, liver, upper respiratory tract, skin, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage.

First Aid Measures

Eye Contact:
Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Get medical attention.

Skin Contact:
In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms appear.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Serious Ingestion: Not available.

Fire and Explosion Data

Flammability of the Product: Flammable.
Auto-Ignition Temperature: 363 degrees C (685.4 degrees F)
Flash Points: CLOSED CUP: 12.78 degrees C (55 degrees F). OPEN CUP: 17.78 degrees C (64 degrees F) (Cleveland).
Flammable Limits: LOWER: 3.3% UPPER: 19%
Products of Combustion: These products are carbon oxides (CO, CO2).

Fire Hazards in Presence of Various Substances:
Highly flammable in presence of open flames and sparks, of heat. Slightly flammable to flammable in presence of
Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Slightly explosive in presence of open flames and sparks, of heat, of oxidizing materials, of acids.

Fire Fighting Media and Instructions:
Flammable liquid, soluble or dispersed in water. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog.

Special Remarks on Fire Hazards:
Containers should be grounded. CAUTION: MAY BURN WITH NEAR INVISIBLE FLAME Vapor may travel considerable distance to source of ignition and flash back. May form explosive mixtures with air. Contact with Bromine pentafluoride is likely to cause fire or explosion. Ethanol ignites on contact with chromyl chloride. Ethanol ignites on contact with iodine heptafluoride gas. It ignites than explodes upon contact with nitrosyl perchlorate. Addition of platinum black catalyst caused ignition.

Special Remarks on Explosion Hazards:
Ethanol has an explosive reaction with the oxidized coating around potassium metal. Ethanol ignites and then explodes on contact with acetic anhydride + sodium hydrosulfate (ignites and may explode), disulfuric acid + nitric acid, phosphorous(III) oxide platinum, potassium-tert-butoxide+ acids. Ethanol forms explosive products in reaction with the following compound: 3 ammonia + silver nitrate (forms silver nitride and silver fulminate), iodine + phosphorus (forms ethane iodide), magnesium perchlorate (forms ethyl perchlorate), mercuric nitrate, nitric acid + silver (forms silver fulminate) silver nitrate (forms silver nitride and silver fulminate), sodium (evolves hydrogen gas). Sodium Hydrazide + alcohol can produce an explosion. Alcohols should not be mixed with mercuric nitrate, as explosive mercuric fulminate may be formed. May form explosive mixture with manganese perchlorate + 2,2-dimethoxypropane. Addition of alcohols to highly concentrate hydrogen peroxide forms powerful explosives. Explodes on contact with calcium hypochlorite.

Accidental Release Measures

Small Spill:
Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

Large Spill:
Flammable liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Handling and Storage

Precautions:
Keep locked up. Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/vapor/spray. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, acids, alcalis, moisture.

Storage:
Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame). Do not store above 23 degrees C (73.4 degrees F).

Exposure Controls/Personal Protection
Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the workstation location.

Personal Protection:
Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves. Use a respirator if the exposure limit is exceeded.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 1900 mg/m³ from OSHA (PEL) [United States] TWA: 1000 ppm from OSHA (PEL) [United States] TWA: 1900 mg/m³ from NIOSH [United States] TWA: 1000 ppm from NIOSH [United States] TWA: 1000 ppm [United Kingdom (UK)] TWA: 1920 mg/m³ [United Kingdom (UK)] TWA: 1000 STEL: 1250 ppm [Canada] Consult local authorities for acceptable exposure limits.

Physical and Chemical Properties

Physical state and appearance: Liquid. (Liquid.)
Odor: Mild to strong, rather pleasant; like wine or whiskey. Alcohol-like; Ethereal, vinous.
pH (1% soln/water): Not available. Boiling Point: 78.5 degrees C (173.3 degrees F) Melting Point: -114.1 degrees C (-173.4 degrees F) Critical Temperature: 243 degrees C (469.4 degrees F) Specific Gravity: 0.789 (Water = 1) Vapor Pressure: 5.7 kPa (@ 20 degrees C) Vapor Density: 1.59 (Air = 1) Volatility: Not available.
Odor Threshold: 100 ppm
Water/Oil Dist. Coeff.: The product is more soluble in water; log(oil/water) = -0.3
Ionicity (in Water): Not available.
Dispersion Properties: See solubility in water, methanol, diethyl ether, acetone.
Solubility: Easily soluble in cold water, hot water. Soluble in methanol, diethyl ether, acetone.

Stability and Reactivity Data

Stability: The product is stable.
Instability Temperature: Not available.
Conditions of Instability: Incompatible materials, heat, sources of ignition. Incompatibility with various substances:

Special Remarks on Reactivity:
Ethanol rapidly absorbs moisture from the air. Can react vigorously with oxidizers. The following oxidants have been demonstrated to undergo vigorous/explosive reaction with ethanol: barium perchlorate, bromine pentfluoride, calcium hypochlorite, chloryl perchlorate, chromium trioxide, chromyl chloride, dioxygen difluoride, disulfuryl difluoride, fluorine nitrate, hydrogen peroxide, iodine heptfluoride, nitric acid nitrosyl perchlorate, perchloric acid permanganic acid, peroxodisulfuric acid, potassium dioxide, potassium perchlorate, potassium permanganate, ruthenium(VIII) oxide, silver perchlorate, silver peroxide, uranium hexafluoride, uranyl perchlorate. Ethanol reacts violently/expodes with the following compounds: acetyl bromide (evolves hydrogen bromide) acetyl chloride, aluminum, sesquibromide ethylate, ammonium hydroxide & silver oxide, chlorate, chromic anhydride, cyanuric acid + water, dichloromethane + sulfuric acid + nitrate (or) nitrite, hydrogen peroxide + sulfuric acid, iodine + methanol + mercuric oxide, manganese perchlorate + 2,2-dimethoxy propane, perchorlates, permanganates + sulfuric acid, potassium superoxide, potassium tert-butoxide, silver & nitric acid, silver perchlorate, sodium hydrazide, sulfuric acid + sodium dichromate, tetrachlorisilane + water. Ethanol is also incompatible with platinium, and sodium. No really safe conditions exist under which ethyl alcohol and chlorine oxides can be handled. Reacts vigorously with acetyl chloride

Special Remarks on Corrosivity: Not available.
Polymerization: Will not occur

Physical and Chemical Properties

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE.
Acute oral toxicity (LD50): 3450 mg/kg [Mouse]. Acute toxicity of the vapor (LC50): 39000 mg/m3 4 hours [Mouse].

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast. TERATOGENIC EFFECTS: Classified PROVEN for human. DEVELOPMENTAL TOXICITY: Classified Development toxin [PROVEN]. Classified Reproductive system/toxin/female, Reproductive system/toxin/male [POSSIBLE]. Causes damage to the following organs: blood, the reproductive system, liver, upper respiratory tract, skin, central nervous system (CNS).

Other Toxic Effects on Humans:
Hazardous in case of skin contact (irritant), of inhalation. Slightly hazardous in case of skin contact (permeator), of ingestion.

Special Remarks on Toxicity to Animals:
Lowest Published Dose/Conc: LDL[Human] - Route: Oral; Dose: 1400 mg/kg LDL[Human child] - Route: Oral; Dose: 2000 mg/ kg LDL[Rabbit] - Route: Skin; Dose: 20000 mg/kg

Special Remarks on Chronic Effects on Humans:
May affect genetic material (mutagenic) Causes adverse reproductive effects and birth defects (teratogenic) , based on moderate to heavy consumption. May cause cancer based on animal data. Human: passes through the placenta, excreted in maternal milk.

Special Remarks on other Toxic Effects on Humans:
Acute potential health effects: Skin: causes skin irritation Eyes: causes eye irritation Ingestion: May cause gastrointestinal tract irritation with nausea, vomiting, diarrhea, and alterations in gastric secretions. May affect behavior/central nervous system (central nervous system depression - amnesia, headache, muscular incoordination, excitation, mild euphoria, slurred speech, drowsiness, staggering gait, fatigue, changes in mood/personality, excessive talking, dizziness, ataxia, somnolence, coma/ narcosis, hallucinations, distorted perceptions, general anesthetic), peripheral nervous system (spastic paralysis)vision (diplopia). Moderately toxic and narcotic in high concentrations. May also affect metabolism, blood, liver, respiration (dyspnea), and endocrine system. May affect respiratory tract, cardiovascular(cardiac arrhythmias, hypotension), and urinary systems. Inhalation: May cause irritation of the respiratory tract and affect behavior/central nervous system with symptoms similar to ingestion. Chronic Potential Health Effects: Skin: Prolonged or repeated skin contact may cause dermatitis, an allergic reaction. Ingestion: Prolonged or repeated ingestion will have similar effects as acute ingestion. It may also affect the brain.

Physical and Chemical Properties

Ecotoxicity: Ecotoxicity in water (LC50): 14000 mg/l 96 hours [Rainbow trout]. 11200 mg/l 24 hours [fingerling trout]. BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise. Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic. Special Remarks on the Products of Biodegradation: Not available.

Disposal Considerations
Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Transport Information


Other Regulatory Information

Federal and State Regulations:
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Ethyl alcohol 200 Proof (in alcoholic beverages) California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: Ethyl alcohol 200 Proof (in alcoholic beverages) Connecticut hazardous material survey.: Ethyl alcohol 200 Proof Illinois toxic substances disclosure to employee act: Ethyl alcohol 200 Proof Rhode Island RTK hazardous substances: Ethyl alcohol 200 Proof Pennsylvania RTK: Ethyl alcohol 200 Proof Florida: Ethyl alcohol 200 Proof Minnesota: Ethyl alcohol 200 Proof Massachusetts RTK: Ethyl alcohol 200 Proof Massachusetts spill list: Ethyl alcohol 200 Proof New Jersey: Ethyl alcohol 200 Proof Tennessee: Ethyl alcohol 200 Proof California - Directors List of Hazardous Substances (8 CCR 339): Ethyl alcohol 200 Proof TSCA 8(b) inventory: Ethyl alcohol 200 Proof

Other Regulations:

Other Classifications:
Protective Equipment: Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Other Information
References:
Limitations
This product is for research use only and is not approved for use in humans or in clinical diagnosis. Kits are guaranteed for 6 months from date of receipt.

For more information on our 100% guarantee, please visit www.novusbio.com/guarantee

Earn gift cards/discounts by submitting a review: www.novusbio.com/reviews/submit/NBP2-29482

Earn gift cards/discounts by submitting a publication using this product: www.novusbio.com/publications