# Human xCT/SLC7A11 Antibody

Monoclonal Mouse $IgG_1$ Clone # 1057408

Catalog Number: MAB11251

## DESCRIPTION

| | |
|---|---|
| **Species Reactivity** | Human |
| **Specificity** | |
| **Source** | Monoclonal Mouse $IgG_1$ Clone # 1057408 |
| **Purification** | Protein A or G purified from hybridoma culture supernatant |
| **Immunogen** | Synthetic peptide within amino acids 1-50 of the Human xCT/SLC7A11 protein<br><br>Met1-Leu501<br>Accession # Q9UPY5 |
| **Formulation** | Lyophilized from a 0.2 μm filtered solution in PBS with Trehalose See Certificate of Analysis for details.<br>*Small pack size (-SP) is supplied either lyophilized or as a 0.2 μm filtered solution in PBS. |

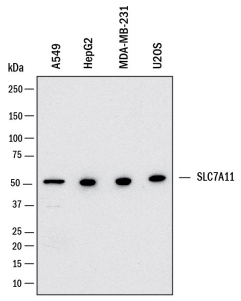
## APPLICATIONS

**Please Note:** *Optimal dilutions should be determined by each laboratory for each application. General Protocols are available in the Technical Information section on our website.*

| | Recommended Concentration | Sample |
|---|---|---|
| **Western Blot** | 2 µg/mL | Lysates of A549 human lung carcinoma cell line, HepG2 human hepatocellular carcinoma cell line, MDA-MB-231 human breast cancer cell line, U2OS human osteosarcoma cell line. |
| **Flow Cytometry** | 0.25 µg/mL | HEK293 human embryonic kidney cell line transfected with human xCT/SLC7A11 and eGFP |

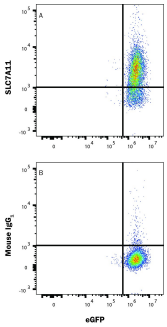
## DATA

### Western Blot




**Detection of Human xCT/SLC7A11 by Western Blot.** Western blot shows lysates of A549 human lung carcinoma cell line, HepG2 human hepatocellular carcinoma cell line, MDA-MB-231 human breast cancer cell line, U2OS human osteosarcoma cell line. PVDF membrane was probed with 2 µg/mL of Mouse Anti-Human xCT/SLC7A11 Monoclonal Antibody (Catalog # MAB11251) followed by HRP-conjugated Anti-Mouse IgG Secondary Antibody (Catalog # HAF018). A specific band was detected for xCT/SLC7A11 at approximately 55 kDa (as indicated). This experiment was conducted under reducing conditions and using Western Blot Buffer Group 1.

### Flow Cytometry




**Detection of xCT/SLC7A11 in HEK293 Human Cell Line Transfected with Human xCT/SLC7A11 and eGFP by Flow Cytometry.** HEK293 human embryonic kidney cell line transfected with human xCT/SLC7A11 and eGFP was stained with (A) Mouse Anti-Human xCT/SLC7A11 Monoclonal Antibody (Catalog # MAB11251) or (B) Mouse IgG1 control antibody staining (Catalog # MAB002) followed by Allophycocyanin-conjugated Anti-Mouse IgG Secondary Antibody (Catalog # F0101B). View our protocol for Staining Membrane-associated Proteins.

## PREPARATION AND STORAGE

| | |
|---|---|
| **Reconstitution** | Reconstitute at 0.5 mg/mL in sterile PBS. |
| **Shipping** | The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.<br>*Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C |
| **Stability & Storage** | **Use a manual defrost freezer and avoid repeated freeze-thaw cycles.**<br>• 12 months from date of receipt, -20 to -70 °C as supplied.<br>• 1 month, 2 to 8 °C under sterile conditions after reconstitution.<br>• 6 months, -20 to -70 °C under sterile conditions after reconstitution. |



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## BACKGROUND

xCT, also called SLC7A11, is the light chain component of the cysteine/glutamate amino acid exchange transporter system Xc (1,2). System Xc is composed of two subunits, the light chain (xCT) and the heavy chain (CD98hc, SLC3A2) and functions by cellular uptake of cysteine in exchange for glutamate in a 1:1 ratio (1,2). The human xCT gene is located on chromosome 4q28.3 and is synthesized as a 12-pass transmembrane protein with both the N- and C-terminals located intracellularly (2, 3). xCT is a 501 amino acids (aa) protein with a theoretical molecular weight of 55.4 kDa (3, 4). xCT expression serves many functional purposes in cells including redox balance, ferroptosis, and chemotherapy or cancer drug resistance (1-3, 5-7). Import of cysteine by xCT plays a role in promoting oxidative stress response as cysteine is a precursor for glutathione synthesis (2, 3, 5-7). Glutathione is a cofactor for ROS-detoxifying enzymes, including glutathione peroxidase (GPX), which help defend from cellular ROS-induced damage (2, 3, 5-7). In addition to its antioxidant role, xCT also utilizes glutathione and GPX to inhibit ferroptosis, which is iron-dependent, non-apoptotic cell-death that occurs with overproduction of lipid hydroperoxides (1-3, 5-7). As cancer cells often experience high oxidative stress, it is understandable that xCT is overexpressed in a variety of cancer types, such as acute myeloid leukemia and breast cancer, and affects cancer growth, invasion, metastasis, and prognosis (1-3, 5-7). xCT expression has also been shown to play a role in glutathione-mediated drug resistance during cancer treatment (1,5,7). However, studies have shown that xCT knockdown results in increased tumor cell death, highlighting its suitability as a druggable target (1,5,7). Specifically, the xCT inhibitors Sulfasalazine, an approved anti-inflammatory drug, and Erastin, a small molecule inhibitor, are potential therapeutic modalities for treating a variety of cancers when used in combination with radiotherapy or immunotherapy (1-3, 5-7).

**References:**

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