# MARCO Antibody / Macrophage receptor with collagenous structure (FY13302)

| Catalog No. | Formulation | Size |
|---|---|---|
| FY13302 | Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml | 100 ug |

**Bulk quote request**

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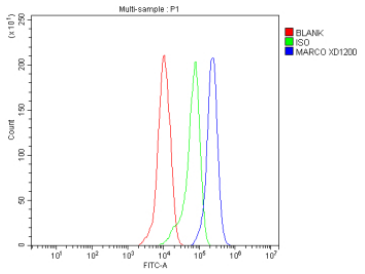
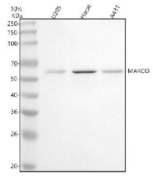
|---|---|
| **Availability** | 1-2 days |
| **Species Reactivity** | Human |
| **Format** | Lyophilized |
| **Clonality** | Polyclonal (rabbit origin) |
| **Isotype** | Rabbit IgG |
| **Purity** | Immunogen affinity purified |
| **Buffer** | Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4. |
| **UniProt** | Q9UEW3 |
| **Applications** | Western Blot : 0.25-0.5ug/ml<br>Flow Cytometry : 1-3ug/million cells<br>ELISA : 0.1-0.5ug/ml |
| **Limitations** | This MARCO antibody is available for research use only. |




Flow Cytometry analysis of THP-1 cells using anti-MARCO antibody. Overlay histogram showing THP-1 cells stained with (Blue line). The cells were fixed with 4% paraformaldehyde and blocked with 10% normal goat serum. And then incubated with rabbit anti-MARCO antibody (1 ug/million cells) for 30 min at 20oC. DyLight 488 conjugated goat anti-rabbit IgG (5-10 ug/million cells) was used as secondary antibody for 30 minutes at 20oC. Isotype control antibody (Green line) was rabbit IgG (1 ug/million cells) used under the same conditions. Unlabelled sample without incubation with primary antibody and secondary antibody (Red line) was used as a blank control.



Western blot analysis of MARCO using anti-MARCO antibody. Lane 1: human U2OS whole cell lysates, Lane 2: human Hacat whole cell lysates, Lane 3: human whole cell lysates. After electrophoresis, proteins were transferred to a nitrocellulose membrane at 150 mA for 50-90 minutes. Blocked the membrane with 5% non-fat milk/TBS for 1.5 hour at RT. The membrane was incubated with rabbit anti-MARCO antibody at 0.5 ug/ml overnight at 4oC, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-rabbit IgG-HRP secondary antibody at a dilution of 1:5000 for 1.5 hour at RT. The signal was developed using enhanced chemiluminescent. A specific band was detected for MARCO at approximately 53 kDa. The expected molecular weight of MARCO is ~53 kDa.

## Description

MARCO antibody detects the Macrophage receptor with collagenous structure, a class A scavenger receptor encoded by the MARCO gene located on chromosome 2q14.2. MARCO is a type II membrane glycoprotein primarily expressed on macrophages, especially in the spleen, lymph nodes, and alveolar tissues. Structurally, the receptor contains a short cytoplasmic tail, a transmembrane domain, a coiled-coil stalk, and a large extracellular collagenous domain ending with a scavenger receptor cysteine-rich (SRCR) domain. These structural regions enable MARCO to bind and internalize a wide variety of microbial ligands, apoptotic debris, and environmental particles, making it a critical component of innate immunity.

As a pattern recognition receptor (PRR), MARCO recognizes both Gram-positive and Gram-negative bacterial components, including lipopolysaccharides, lipoteichoic acids, and bacterial DNA. Through its SRCR domain, MARCO antibody detects the receptorÃ¯Â¿Â½s role in phagocytosis and immune surveillance. Upon ligand binding, MARCO facilitates pathogen uptake and triggers downstream signaling pathways that regulate inflammation and macrophage activation. It cooperates with other receptors such as TLR2, TLR4, and CD14 to enhance recognition and clearance of pathogens. Functionally, MARCO acts as both a scavenger and adhesion molecule, mediating macrophage binding to microbial surfaces and extracellular matrix components.

MARCO expression is inducible by inflammatory stimuli such as lipopolysaccharide (LPS), interferon gamma, and bacterial infection. In the lung, alveolar macrophages expressing MARCO are essential for clearance of inhaled pathogens and environmental particulates, protecting against infection and tissue damage. Experimental models show that MARCO-deficient mice have impaired clearance of Streptococcus pneumoniae, Listeria monocytogenes, and Mycobacterium tuberculosis, emphasizing its importance in pulmonary immunity. The receptor also binds oxidized lipids and apoptotic cells, participating in tissue remodeling and atherosclerosis prevention.

MARCO is part of the macrophage scavenger receptor family that includes SR-A1 (MSR1) and SCARA5. Among these, MARCO is distinguished by its extended collagenous domain and unique ligand specificity. Structurally, the SRCR domain coordinates divalent metal ions required for ligand interaction and receptor clustering on the cell surface. The receptor forms trimers stabilized by disulfide bonds, allowing it to crosslink and internalize large particles. In addition to macrophages, MARCO can be transiently expressed on dendritic cells and certain epithelial cells under inflammatory conditions.

Disease associations highlight MARCO's dual role in host defense and inflammation. Variants in the MARCO gene have been linked to increased susceptibility to pulmonary tuberculosis and chronic obstructive pulmonary disease (COPD). Dysregulated MARCO expression contributes to granulomatous inflammation and altered immune responses in respiratory disorders. In neuroinflammation, microglial MARCO participates in clearance of amyloid-beta aggregates, suggesting a role in AlzheimerÃ¯Â¿Â½s disease pathology. Moreover, tumor-associated macrophages expressing MARCO promote immunosuppression in certain cancers, making the receptor a target of emerging cancer immunotherapies aimed at reprogramming macrophage activity.

Immunohistochemical staining using MARCO antibody reveals strong membrane and cytoplasmic localization in splenic

red pulp macrophages, alveolar macrophages, and Kupffer cells of the liver. This antibody serves as a key reagent in studying macrophage differentiation, pathogen-host interaction, and innate immune mechanisms. MARCO antibody from NSJ Bioreagents provides reliable detection for use in immunology, toxicology, and infectious disease research.

## Application Notes

Optimal dilution of the MARCO antibody should be determined by the researcher.

## Immunogen

E.coli-derived human MARCO recombinant protein (Position: M1-R489) was used as the immunogen for the MARCO antibody.

## Storage

After reconstitution, the MARCO antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.