Human/Mouse/Rat SOD2/Mn-SOD Antibody

Monoclonal Mouse IgG_1 Clone # 349810

Catalog Number: MAB3419

DESCRIPTION

Species Reactivity	Human/Mouse/Rat
Specificity	Detects human, mouse, and rat SOD2 in Western blots. In Western blots, no cross-reactivity with recombinant human SOD1 or SOD3 is observed.
Source	Monoclonal Mouse IgG_1 Clone # 349810
Purification	Protein A or G purified from hybridoma culture supernatant
Immunogen	*E. coli*-derived recombinant human SOD2/Mn-SOD Lys25-Lys222 Accession # P04179
Formulation	Lyophilized from a 0.2 μm filtered solution in PBS with Trehalose. See Certificate of Analysis for details. *Small pack size (-SP) is supplied either lyophilized or as a 0.2 μm filtered solution in PBS.

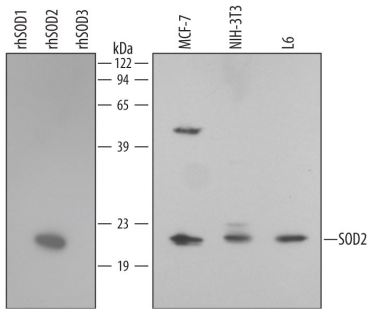
APPLICATIONS

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	0.5 µg/mL	See Below
Immunocytochemistry	1-25 µg/mL	See Below

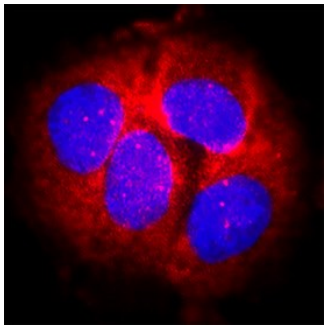
DATA

Western Blot



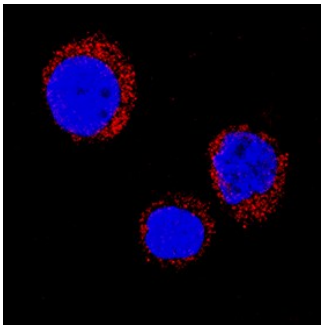
Detection of Human/Mouse/Rat SOD2/Mn-SOD by Western Blot. Western blot shows lysates of MCF-7 human breast cancer cell line, NIH-3T3 mouse embryonic fibroblast cell line, and L6 rat myoblast cell line. PVDF membrane was probed with 0.5 µg/mL Mouse Anti-Human/Mouse/Rat SOD2/Mn-SOD Monoclonal Antibody (Catalog # MAB3419) followed by HRP-conjugated Anti-Mouse IgG Secondary Antibody (Catalog # Catalog # HAF007). For additional reference, recombinant human SOD1, SOD2, and SOD3 (1 ng/lane) were included. A specific band for SOD2/Mn-SOD was detected at approximately 22 kDa (as indicated). This experiment was conducted under reducing conditions and using Immunoblot Buffer Group 2.

Immunocytochemistry



SOD2/Mn-SOD in MCF-7 Human Cell Line. SOD2/Mn-SOD was detected in immersion fixed MCF-7 human breast cancer cell line using Mouse Anti-Human/Mouse/Rat SOD2/Mn-SOD Monoclonal Antibody (Catalog # MAB3419) at 25 µg/mL for 3 hours at room temperature. Cells were stained using the NorthernLights™ 557-conjugated Anti-Mouse IgG Secondary Antibody (red; Catalog # Catalog # NL007) and counterstained with DAPI (blue). Specific staining was localized to cytoplasm. View our protocol for Fluorescent ICC Staining of Cells on Coverslips.

Immunocytochemistry



SOD2/Mn-SOD in HL-60 Human Cell Line. SOD2/Mn-SOD was detected in immersion fixed HL-60 human acute promyelocytic leukemia cell line using Mouse Anti-Human/Mouse/Rat SOD2/Mn-SOD Monoclonal Antibody (Catalog # MAB3419) at 3 µg/mL for 3 hours at room temperature. Cells were stained using the NorthernLights™ 557-conjugated Anti-Mouse IgG Secondary Antibody (red; Catalog # Catalog # NL007) and counterstained with DAPI (blue). Specific staining was localized to cytoplasm. View our protocol for Fluorescent ICC Staining of Non-adherent Cells.

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Human/Mouse/Rat SOD2/Mn-SOD Antibody

Monoclonal Mouse IgG_1 Clone # 349810

Catalog Number: MAB3419

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. *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.** • 12 months from date of receipt, -20 to -70 °C as supplied. • 1 month, 2 to 8 °C under sterile conditions after reconstitution. • 6 months, -20 to -70 °C under sterile conditions after reconstitution.

BACKGROUND

Superoxide Dismutases (SODs), originally identified as Indophenoloxidases (IPOs), are enzymes that catalyze the conversion of naturally-occuring but harmful superoxide radicals into molecular oxygen and hydrogen peroxide. Superoxide Dismutases 2 (SOD2), also known as Manganese (Mn) SOD, mitochondrial SOD, and IPO-B, is an intramitochondrial 22 kDa homotetramer. Each SOD2 monomer binds one Mn^{2+} ion. Three isozymes of SOD have been identified and are functionally related but have very modest sequence homology. SOD2 shares only 23% and 17% sequence identity with SOD1 and SOD3, respectively. SOD2 is, however, well conserved from species to species and shares 90% and 87% homology with mouse and rat SOD2, respectively. Oxidative stress has been implicated in many diseases and the chief source of reactive oxygen species within the cell is the mitochondrion. SOD2 is a free radical scavenging enzyme that protects against damage from superoxide produced as a byproduct of oxidative phosphorylation. SOD2 is required for normal biologic function of tissues by maintaining the integrity of mitochondrial enzymes susceptible to inactivation by superoxide. Mutations in this gene have been associated with idiopathic cardiomyopathy (IDC), premature aging, sporadic motor neuron disease, and cancer.

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