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InnoCyto Inc.

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Anti-Human CD163 Antibody

Catalog Number:	117701, 117702
Size:	25 µg, 100 µg
Target Name:	CD163, M130
Regulatory Status:	RUO

PRODUCT DETAILS

Clone:	163AM1
Application:	Flow Cytometry, ICC
Reactivity:	Human
Format:	Purified
Isotype:	Mouse IgG1
Antibody Type:	Monoclonal
Formulation:	Phosphate-buffered solution, pH 7.2, containing 0.09% sodium azide
Protein Concentration:	0.5 mg/mL
Storage & Handling:	The antibody solution should be stored between 2°C and 8°C
Recommended Usage:	For flow cytometric staining, it is recommended to use less than 0.2 µg of this reagent per 0.5-1.0 million cells in a 100 µL volume. Optimal reagent performance should be determined by titration for each specific application
Isotype Control:	301401

BACKGROUND INFORMATION

Human CD163 is a member of the scavenger receptor cysteine-rich (SRCR) superfamily that is expressed predominantly on monocytes, tissue macrophages, and specialized anti-inflammatory (M2-like) macrophages. Its primary physiological function is to mediate the clearance of hemoglobin released during red blood cell breakdown by binding hemoglobin-haptoglobin (Hb-Hp) complexes. Internalization of these complexes promotes iron recycling, limits oxidative tissue damage, and contributes to the resolution of inflammation. CD163 expression is upregulated by anti-inflammatory mediators such as interleukin-10 and glucocorticoids and is reduced by pro-inflammatory cytokines, reflecting its important role in maintaining immune homeostasis.

Structurally, CD163 is a type I transmembrane glycoprotein composed of a large extracellular region containing nine scavenger receptor cysteine-rich (SRCR) domains, a single transmembrane helix, and a short cytoplasmic tail involved in receptor internalization. Proteolytic cleavage of the extracellular domain by metalloproteases, particularly ADAM17, generates soluble CD163 (sCD163), which circulates in plasma and serves as a biomarker of macrophage activation. The best-characterized ligand is the hemoglobin-haptoglobin complex, although CD163 can also interact with selected bacterial components and endogenous inflammatory mediators.

CD163 has been implicated in numerous diseases characterized by inflammation or macrophage activation, including sepsis,

atherosclerosis, liver disease, rheumatoid arthritis, obesity, and several cancers. Elevated circulating sCD163 levels often correlate with disease severity and prognosis. Tumor-associated macrophages expressing high levels of CD163 are frequently associated with an immunosuppressive tumor microenvironment and poor clinical outcomes.

Therapeutically, CD163 is an attractive target for macrophage-specific drug delivery because of its restricted expression and efficient endocytic activity. Antibody-drug conjugates, nanoparticles, and antibody-cytokine fusion proteins directed against CD163 are being developed to selectively modulate macrophage function while minimizing systemic toxicity. In addition, sCD163 is being investigated as a diagnostic and prognostic biomarker for inflammatory, infectious, metabolic, and malignant diseases.

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