Human FCRN Alexa Fluor® 405-conjugated Antibody

Monoclonal Mouse IgG_{2B} Clone # 937508
Catalog Number: IC8639V
100 µg

DESCRIPTION

Species Reactivity	Human
Specificity	Detects human FCRN in direct ELISAs.
Source	Monoclonal Mouse IgG_{2B} Clone # 937508
Purification	Protein A or G purified from hybridoma culture supernatant
Immunogen	Chinese hamster ovary cell line CHO-derived recombinant human FCRN Ala24-Ser297 Accession # P55899
Conjugate	Alexa Fluor 405 Excitation Wavelength: 405 nm Emission Wavelength: 421 nm
Formulation	Supplied in a saline solution containing BSA and Sodium Azide. See Certificate of Analysis for details. *Contains <0.1% Sodium Azide, which is not hazardous at this concentration according to GHS classifications. Refer to the Safety Data Sheet (SDS) for additional information and handling instructions.

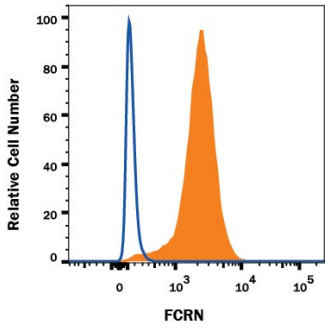
APPLICATIONS

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
Intracellular Staining by Flow Cytometry	0.25-1 µg/10^6 cells	See Below

DATA

Intracellular Staining by Flow Cytometry



Detection of FCRN in U937 Human Cell Line by Flow Cytometry. U937 human histiocytic lymphoma cell line was stained with Mouse Anti-Human FCRN Alexa Fluor® 405-conjugated Monoclonal Antibody (Catalog # IC8639V, filled histogram) or isotype control antibody (Catalog # IC0041V, open histogram). To facilitate intracellular staining, cells were fixed and permeabilized with FlowX FoxP3 Fixation & Permeabilization Buffer Kit (Catalog # FC012). View our protocol for Staining Intracellular Molecules.

PREPARATION AND STORAGE

Shipping	The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	**Protect from light. Do not freeze.** • 12 months from date of receipt, 2 to 8 °C as supplied.

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Global bio-techne.com info@bio-techne.com techsupport@bio-techne.com TEL +1 612 379 2956
USA TEL 800 343 7475 **Canada** TEL 855 668 8722 **China** TEL +86 (21) 52380373
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BACKGROUND

The neonatal Fc receptor (FCRN) is an approximately 45 kDa transmembrane glycoprotein with structural homology to MHC class I proteins. It is widely expressed in endothelial and epithelial cells and plays an important role in IgG homeostasis and antigen presentation by dendritic cells (1, 2). Mature human FCRN consists of a 274 amino acid (aa) extracellular domain (ECD) with two N-terminal alpha domains, one α3/immunoglobulin-like domain, a 23 aa transmembrane segment, and a 44 aa cytoplasmic domain (3). Within the ECD, human FCRN shares 68% aa sequence identity with mouse and rat FCRN. Mouse FCRN binds with high affinity to IgG from mouse, human, rat, rabbit, guinea pig, bovine, and sheep, while human FCRN binds IgG with significantly lower affinity and is much more restricted in terms of species recognition (4). It does not bind the structurally related chicken IgY (5). FCRN additionally binds to albumin, and both it and IgG are bound at pH 5.0 but not at pH 8.0 (3, 6). FCRN associates noncovalently with beta 2-Microglobulin, and this interaction is important for the intracellular trafficking of FCRN (7-10). FCRN cycles between the plasma membrane and acidified intracellular compartments of endothelial cells and epithelial cells (5, 8). It binds endocytosed IgG and albumin in the low pH vesicles and transports them to the plasma membrane for extracellular release at higher pH. This protects IgG and albumin from lysosomal degradation and helps maintain the circulating levels of both proteins (5, 6). This mechanism is involved in the bidirectional transport of IgG across epithelial and endothelial barriers including neonatal IgG absorption in the intestine and fetal uptake of maternal antibodies through the placenta (5, 8, 11, 12). In the kidney, FCRN recycles albumin to the serum but removes IgG from the glomular basement membrane and promotes its excretion into the urine (13, 14). FCRN is also expressed in neutrophils and myeloid antigen presenting cells (7, 15, 16). It can enhance IgG-mediated phagocytosis and antigen presentation by these cells, but it promotes the degradation of opsonizing IgG rather than returning it to the circulation (15, 16).

References:

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