

## iF488 Anti-human GRP78 Antibody

<b>Catalog Number:</b>	113105, 113106
<b>Size:</b>	25 tests, 100 tests
<b>Target Name:</b>	GRP-78, HSPA5, BiP, Endoplasmic reticulum lumenal Ca(2+)-binding protein grp78, Immunoglobulin heavy chain constant region 1, Immunoglobulin heavy chain constant region 2, Immunoglobulin heavy chain constant region 3, Immunoglobulin heavy chain constant region 4, Immunoglobulin heavy chain constant region 5, Immunoglobulin heavy chain constant region 6, Immunoglobulin heavy chain constant region 7, Immunoglobulin heavy chain constant region 8, Immunoglobulin heavy chain constant region 9, Immunoglobulin heavy chain constant region 10, Immunoglobulin heavy chain constant region 11, Immunoglobulin heavy chain constant region 12, Immunoglobulin heavy chain constant region 13, Immunoglobulin heavy chain constant region 14, Immunoglobulin heavy chain constant region 15, Immunoglobulin heavy chain constant region 16, Immunoglobulin heavy chain constant region 17, Immunoglobulin heavy chain constant region 18, Immunoglobulin heavy chain constant region 19, Immunoglobulin heavy chain constant region 20, Immunoglobulin heavy chain constant region 21, Immunoglobulin heavy chain constant region 22, Immunoglobulin heavy chain constant region 23, Immunoglobulin heavy chain constant region 24, Immunoglobulin heavy chain constant region 25, Immunoglobulin heavy chain constant region 26, Immunoglobulin heavy chain constant region 27, Immunoglobulin heavy chain constant region 28, Immunoglobulin heavy chain constant region 29, Immunoglobulin heavy chain constant region 30, Immunoglobulin heavy chain constant region 31, Immunoglobulin heavy chain constant region 32, Immunoglobulin heavy chain constant region 33, Immunoglobulin heavy chain constant region 34, Immunoglobulin heavy chain constant region 35, Immunoglobulin heavy chain constant region 36, Immunoglobulin heavy chain constant region 37, Immunoglobulin heavy chain constant region 38, Immunoglobulin heavy chain constant region 39, Immunoglobulin heavy chain constant region 40, Immunoglobulin heavy chain constant region 41, Immunoglobulin heavy chain constant region 42, Immunoglobulin heavy chain constant region 43, Immunoglobulin heavy chain constant region 44, Immunoglobulin heavy chain constant region 45, Immunoglobulin heavy chain constant region 46, Immunoglobulin heavy chain constant region 47, Immunoglobulin heavy chain constant region 48, Immunoglobulin heavy chain constant region 49, Immunoglobulin heavy chain constant region 50, Immunoglobulin heavy chain constant region 51, Immunoglobulin heavy chain constant region 52, Immunoglobulin heavy chain constant region 53, Immunoglobulin heavy chain constant region 54, Immunoglobulin heavy chain constant region 55, Immunoglobulin heavy chain constant region 56, Immunoglobulin heavy chain constant region 57, Immunoglobulin heavy chain constant region 58, Immunoglobulin heavy chain constant region 59, Immunoglobulin heavy chain constant region 60, Immunoglobulin heavy chain constant region 61, Immunoglobulin heavy chain constant region 62, Immunoglobulin heavy chain constant region 63, Immunoglobulin heavy chain constant region 64, Immunoglobulin heavy chain constant region 65, Immunoglobulin heavy chain constant region 66, Immunoglobulin heavy chain constant region 67, Immunoglobulin heavy chain constant region 68, Immunoglobulin heavy chain constant region 69, Immunoglobulin heavy chain constant region 70, Immunoglobulin heavy chain constant region 71, Immunoglobulin heavy chain constant region 72, Immunoglobulin heavy chain constant region 73, Immunoglobulin heavy chain constant region 74, Immunoglobulin heavy chain constant region 75, Immunoglobulin heavy chain constant region 76, Immunoglobulin heavy chain constant region 77, Immunoglobulin heavy chain constant region 78, Immunoglobulin heavy chain constant region 79, Immunoglobulin heavy chain constant region 80, Immunoglobulin heavy chain constant region 81, Immunoglobulin heavy chain constant region 82, Immunoglobulin heavy chain constant region 83, Immunoglobulin heavy chain constant region 84, Immunoglobulin heavy chain constant region 85, Immunoglobulin heavy chain constant region 86, Immunoglobulin heavy chain constant region 87, Immunoglobulin heavy chain constant region 88, Immunoglobulin heavy chain constant region 89, Immunoglobulin heavy chain constant region 90, Immunoglobulin heavy chain constant region 91, Immunoglobulin heavy chain constant region 92, Immunoglobulin heavy chain constant region 93, Immunoglobulin heavy chain constant region 94, Immunoglobulin heavy chain constant region 95, Immunoglobulin heavy chain constant region 96, Immunoglobulin heavy chain constant region 97, Immunoglobulin heavy chain constant region 98, Immunoglobulin heavy chain constant region 99, Immunoglobulin heavy chain constant region 100
<b>Regulatory Status:</b>	RUO

### PRODUCT DETAILS

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<b>Clone:</b>	C38
<b>Application:</b>	Flow Cytometry
<b>Reactivity:</b>	Human
<b>Format:</b>	iF488
<b>Isotype:</b>	Mouse IgG2b
<b>Antibody Type:</b>	Monoclonal
<b>Formulation:</b>	Phosphate-buffered solution, pH 7.2, containing 0.09% sodium azide and 0.2% (w/v) BSA
<b>Protein Concentration:</b>	Supplied at a lot-specific concentration.
<b>Storage&amp;Handling:</b>	The antibody solution should be stored undiluted between 2°C and 8°C, and protected from prolonged exposure to light. Do not freeze.
<b>Recommended Usage:</b>	For flow cytometric staining, it is recommended to use 5 µL 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. iF488 has an excitation max at 491 nm and an emission max at 516 nm.
<b>Excitation Laser:</b>	Blue Laser (488 nm)
<b>Isotype Control:</b>	301603

### BACKGROUND INFORMATION

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GRP78, also known as BiP or HSPA5, is a key molecular chaperone belonging to the heat shock protein 70 (HSP70) family. It is predominantly localized in the endoplasmic reticulum (ER), where it plays a central role in protein folding, assembly, and quality control. GRP78 is also a master regulator of the unfolded protein response (UPR), a cellular stress pathway activated under conditions such as hypoxia, nutrient deprivation, or accumulation of misfolded proteins. By binding to ER stress sensors, GRP78 maintains them in an inactive state under normal conditions and releases them upon stress to initiate adaptive signaling.

Structurally, GRP78 consists of two major functional domains: an N-terminal ATPase domain and a C-terminal substrate-binding domain. The ATPase domain hydrolyzes ATP to regulate the chaperone cycle, while the substrate-binding domain interacts with unfolded or misfolded polypeptides. A C-terminal KDEL sequence ensures its retention within the ER lumen. Under certain pathological conditions, GRP78 can also be translocated to the cell surface or secreted extracellularly, where it acquires additional signaling functions.

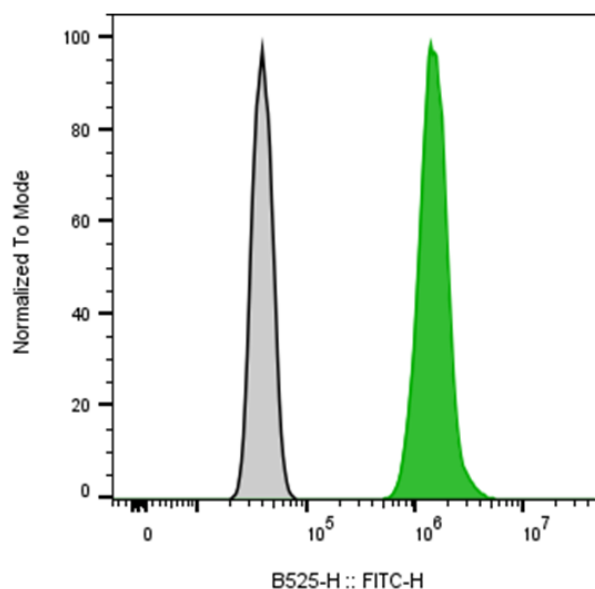
GRP78 interacts with a wide range of ligands, including nascent polypeptides, misfolded proteins, and ER stress sensors such as PERK, IRE1, and ATF6. When expressed on the cell surface, it can bind extracellular ligands such as  $\alpha$ 2-macroglobulin, Cripto, and certain viral proteins, mediating signaling pathways that influence cell survival, proliferation, and immune responses.

In disease, GRP78 is frequently upregulated in cancer, where it promotes tumor cell survival, resistance to apoptosis, metastasis, and therapy resistance. It is also implicated in neurodegenerative disorders, metabolic diseases, and viral infections due to its central role in protein homeostasis and stress responses.

Therapeutically, GRP78 is an attractive target for cancer treatment. Strategies include small molecules, antibodies, and peptides that inhibit its function or target GRP78-expressing cells, particularly those displaying GRP78 on their surface. Modulating GRP78 activity may also have potential in treating diseases associated with ER stress and protein misfolding.

## PRODUCT DATA

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COLO-205 cells were stained with iF488 Anti-Human GRP78 clone C38 (color-filled histogram) or an isotype control (right).

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