SANTA CRUZ BIOTECHNOLOGY, INC.

# ULBP1 (3F1): sc-53131

SANTA CRUZ BIOTECHNOLOGY

*The Power to Question*

## BACKGROUND

The immune system contains genetically encoded subsystems, which monitor the extracellular environment in order to eliminate pathogens and resolve abnormal or transformed tissues. Cytomegalovirus UL16 binding proteins, known as ULBPs, are GPI-linked glycoproteins that belong to the extended MHC class I family and are distantly related to MHC class I polypeptide-related sequence B, known as MICB. ULBP and MICB proteins are ligands for the activating receptor NKG2D/DAP10, which causes lymphocyte activation resulting in the secretion of cytokines, such as interferon-γ and tumor cell lysis. The interaction of ULBP or MICB with NKG2D/DAP10 can be blocked by the soluble form of UL16. ULBPs stimulate cytokine and chemokine production from NK cells, CD8 α/β T cells and γ/δ T cells. Soluble forms of ULBPs induce protein tyrosine phosphorylation and activation of the Janus kinase 2, Stat5, extracellular signal-regulated kinase, mitogen-activated protein kinase and phosphatidylinositol 3-kinase (PI 3-kinase)/Akt signal transduction pathways.

## REFERENCES


1. Cosman, D., et al. 2001. ULBPs, novel MHC class I-related molecules, bind to CMV glycoprotein UL16 and stimulate NK cytotoxicity through the NKG2D receptor. Immunity 14: 123-133.
2. Kubin, M., et al. 2001. ULBP1, 2, 3: novel MHC class I-related molecules that bind to human cytomegalovirus glycoprotein UL16, activate NK cells. Eur. J. Immunol. 31: 1428-1437.
3. Sutherland, C.L., et al. 2002. UL16-binding proteins, novel MHC class I-related proteins, bind to NKG2-D and activate multiple signaling pathways in primary NK cells. J. Immunol. 168: 671-679.


## CHROMOSOMAL LOCATION

Genetic locus: ULBP1 (human) mapping to 6q25.1.

## SOURCE

ULBP1 (3F1) is a mouse monoclonal antibody raised against purified ULBP1 of human origin.

## PRODUCT

Each vial contains 200 µg IgM kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin. Also available azide-free for blocking, sc-53131 L, 200 µg/0.1 ml.

## APPLICATIONS

ULBP1 (3F1) is recommended for detection of ULBP1 of human origin by immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and flow cytometry (1 µg per 1 x $10^6$ cells).

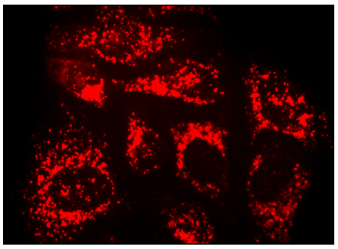
Suitable for use as control antibody for ULBP1 siRNA (h): sc-43005, ULBP1 shRNA Plasmid (h): sc-43005-SH and ULBP1 shRNA (h) Lentiviral Particles: sc-43005-V.

Molecular Weight of ULBP1: 30-35 kDa.

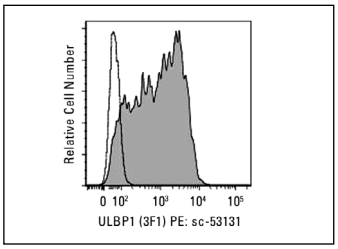
## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Immunoprecipitation: use Protein L-Agarose: sc-2336 (0.5 ml agarose/2.0 ml). 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

## DATA



ULBP1 (3F1): sc-53131. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization.




ULBP1 (3F1): sc-53131. Indirect FCM analysis of C1R mock (black line histogram) and C1R-ULBP1 transfectants (solid histogram) stained with ULBP1 (3F1) followed by PE-conjugated goat anti-mouse IgM. Kindly provided by Nobuyoshi Hanaoka and Veronika Groh at Fred Hutchinson Cancer Research Center.

## SELECT PRODUCT CITATIONS


1. Kamimura, H., et al. 2012. Reduced NKG2D ligand expression in hepatocellular carcinoma correlates with early recurrence. J. Hepatol. 56: 381-388.
2. Yao, C., et al. 2018. Rocaglamide enhances NK cell-mediated killing of non-small cell lung cancer cells by inhibiting autophagy. Autophagy 14: 1831-1844.
3. Luo, D., et al. 2019. MG132 selectively upregulates MICB through the DNA damage response pathway in A549 cells. Mol. Med. Rep. 19: 213-220.
4. Okita, R., et al. 2019. Clinicopathological relevance of tumor expression of NK group 2 member D ligands in resected non-small cell lung cancer. Oncotarget 10: 6805-6815.
5. Ng, W., et al. 2021. Targeting CD155 by rediocide-A overcomes tumour immuno-resistance to natural killer cells. Pharm. Biol. 59: 47-53.
6. Qi, F., et al. 2021. Tumor mutation burden-associated LINC00638/miR-4732-3p/ULBP1 axis promotes immune escape via PD-L1 in hepatocellular carcinoma. Front. Oncol. 11: 729340.


## STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.

## PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.