iLite® mTNF-alpha (-) Target Assay Ready Cells

REF: BM5014

For research use only. Not for use in diagnostic procedures.

DESCRIPTION

iLite® mTNF-alpha (-) Target Assay Ready Cells are based on a human embryonic kidney cell line, HEK293[1] and have been genetically engineered and any expression of surface-bound mTNF-alpha depleted. The cells are to be use as negative controls (-) of the positive (+) Target Assay Ready Cells for measuring the ADCC or ADCP activity of anti-mTNF-alpha antibodies together with *iLite*® ADCC Effector (V) Assay Ready Cells or with *iLite*® ADCP Effector Assay Ready Cells, respectively.

CONTENT

>250 µL of *iLite*® Assay Ready Cells suspended in cryoprotective medium from Gibco (cat no 12648-010).

RECEIPT AND STORAGE

Upon receipt confirm that adequate dry-ice is present, and the cells are frozen. Immediately transfer to -80°C storage. Cells should be stored at -80 C or at lower temperature and are stable as supplied until the expiry date shown. Cells should be diluted and plated immediately after thawing.

BACKGROUND

Tumor necrosis factor (TNF) alpha is a pro-inflammatory cytokine produced in a transmembrane form (mTNF-alpha) which is cleaved and released into a soluble form. Anti-TNF-alpha antibodies binds to both soluble and membrane bound to mediate its biological activities (1).

Therapeutic antibodies act by binding to a cell surface receptor by the Fab domain resulting in induction/blocking of signaling events. However, Fc engineering strategies to increase the efficacy of therapeutic antibodies are ongoing (2). *In vitro* generated data shows that the Fc-part of the anti-TNF-alpha antibody causes cell death to mTNF-alpha expressing cells by inducing antibody-dependent cellular cytotoxicity (ADCC), antibody-dependent cellular phagocytosis (ADCP), complement-dependent cytotoxicity (CDC), and programmed cell death (3).

Anti-TNF-alpha antibodies are used for treatment of anti-inflammatory diseases such as Crohn's disease (4), psoriasis (5), and rheumatoid arthritis (6) and the clinical effects by Infliximab are suggested to be caused by neutralization of soluble TNF-alpha, apoptosis and antibody and complement mediated cytotoxicity (3, 7).

[1] The HEK-293 cell line has been used under a license obtained from AdVec Inc.

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APPLICATION

The *iLite*® mTNF-alpha (-) Target Assay Ready Cells can be used together with *iLite*® ADCC Effector (V), *iLite*® ADCP Effector and *iLite*® CD20 (+) Target Assay Ready Cells for the quantification ADCC and ADCP activity of anti-mTNF-alpha antibodies.

Application notes for the following assays are available:

- Quantification of anti-mTNF-alpha ADCC activity (LABEL-DOC-0402)
- Quantification of anti-mTNF-alpha ADCP activity (LABEL-DOC-0585)

RELATED PRODUCTS

REF	Product name
BM5001	*iLite*® ADCC Effector (V) Assay Ready Cells
BM5004	*iLite*® ADCP Effector Assay Ready Cells
BM5013	*iLite*® mTNF-alpha (+) Target Assay Ready Cells

REFERENCES

1. Szondy Z, Pallai A. *Transmembrane TNF-alpha reverse signaling leading to TGF-beta production is selectively activated by TNF targeting molecules: Therapeutic implications.* Pharmacol Res. Jan;115:124-132 (2017)
2. Liu R, Oldham RJ, Teal E, Beers SA, and Cragg MS. *Fc-Engineering for Modulated Effector Functions—Improving Antibodies for Cancer Treatment*. Antibodies. 9(4):64 (2020)
3. Wang Q, Oryoji D, Mitoma H. et al., *Methotrexate Enhances Apoptosis of Transmembrane TNF-Expressing Cells Treated With Anti-TNF Agents*. Front Immunol 11:2042 (2020)
4. Targan SR, Hanauer SB, van Deventer SJ., et al. *A short-term study of chimeric monoclonal antibody cA2 to tumor necrosis factor alpha for Crohn's disease. Crohn's Disease cA2 Study Group*. N Engl J Med 337:1029–1035 (1997)
5. Mossner R, Schon MP, Reich K. *Tumor necrosis factor antagonists in the therapy of psoriasis.* Clin Dermatol 26:486–502 (2008)
6. Feldmann M, Maini RN *Anti-TNF alpha therapy of rheumatoid arthritis: what have we learned?* Annu Rev Immunol 19:163–196 (2001)
7. Tracey D, Klareskog L, Sasso EH., et al. *Tumor necrosis factor antagonist mechanisms of action: a comprehensive review.* Pharmacol Ther 117:244–279 (2008)

SYMBOLS ON LABEL

LOT	Lot number		Temperature limitation
REF	Catalogue number		Biological risk
	Use by		Manufacturer

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PRECAUTIONS

For research use only. This product is intended for professional laboratory research use only. The data and results originating from using the product, should not be used either in diagnostic procedures or in human therapeutic applications.

iLite® mTNF-alpha (-) Target Assay Ready Cells are a stable transfected cell line of human origin classified as a Class 1 Genetically Modified Microorganism This is based on the conclusion that neither insert nor vector adds anything to the biosafety level since the cells cannot produce active virus. They should be handled in accordance with EU directive (2009/41/EC) and disposed of in a licensed contained-use facility in accordance with these regulations. When used in accordance with the manufacturer's product specification, the requirements of EC Directive 2009/41/EC on the contained-use of genetically modified microorganisms are deemed to have been met.

Residues of chemicals and preparations generally considered as biohazardous waste and should be inactivated prior to disposal by autoclaving or using bleach. All such materials should be disposed of in accordance with established safety procedures.

PROPRIETARY INFORMATION

In accepting delivery of *iLite*® Assay Ready Cells the recipient agrees not to sub-culture these cells, attempt to sub-culture them or to give them to a third party, and only to use them directly in assays. *iLite*® cell-based products are covered by patents which is the property of Svar Life Science AB and any attempt to reproduce the delivered *iLite*® Assay Ready Cells is an infringement of these patents.

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