iLite® C3a Assay Ready Cells

REF: BM4073

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

DESCRIPTION

iLite® C3a Assay Ready Cells are human embryonic kidney HEK293[1] cells which have been genetically engineered and optimized to be responsive to human complement component 3a (C3a), resulting in a proportional expression of Firefly Luciferase. The cells also contain the Renilla luciferase (RL) internal standardization gene under the control of a constitutive promoter that renders assay results independent of cell number and provides a means for correcting for cytotoxic effects that may be encountered with some biological samples.

CONTENT

>250 µL of Assay Ready Cells suspended in cryoprotective medium from Amsbio (Cat. No 11914).

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 least 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

Complement component 3a (C3a) is a 77 amino acid, 9 kDa, protein fragment of complement protein 3 (C3). C3 is highly abundant in the circulation and can be cleaved by C3 convertases to C3a and C3b as a result of complement activation. In analogy to C5a, C3a can also be generated by the extrinsic pathways, independently of the complement convertases, for example by factors of the coagulation and fibrinolytic pathways.
C3a induce effector functions by binding with the C-terminal to the C3a receptor, C3aR, a seven-transmembrane G protein-coupled receptor. Rapidly after C3a formation, if not bound to C3aR, the C-terminal arginine of C3a is removed by carboxypeptidases, resulting in C3a-desArg, that is unable to bind C3aR. (1, 2)

C3a are mainly described as a pro-inflammatory and chemotactic mediator, with weaker potency compared to C5a. Lately also anti-inflammatory characteristics has been described for C3a. Depending on cell type expressing C3aR and situation, C3a is able to induce either pro- or anti-inflammatory effects. This duality of C3a has been observed in several disease models of both acute and chronic inflammation. (3)

In the light of this duplexity, the therapeutic potential of targeting C3aR is still in research phase even though animal models have demonstrated the possible usefulness of both inhibition and activation of C3aR. Therefore, both agonists and antagonists of the C3a-C3aR axis may have potential therapeutic value. Several inhibitors of C3 has reached clinical trials while trials targeting C3a/C3aR are still lacking. (4)

APPLICATION

The *iLite*® C3a Assay Ready Cells can be used for studies of C3a, receptor C3aR and their interaction.

Application Note for the following assay is available:

- Quantification of functional C3a (LABEL-DOC-0518)

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

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REFERENCES

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2. Gao et al. The Complement C3a and C3a Receptor Pathway in Kidney Diseases. Front Immunol. 2020 Aug 18; 11:1875. doi.org/10.3389/fimmu.2020.01875.
3. Coulthard et al. Is the Complement Activation Product C3a a Proinflammatory Molecule? Re-evaluating the Evidence and the Myth. J Immunol April 15, 2015, 194 (8) 3542-3548; doi.org/10.4049/jimmunol.1403068.
4. Hawksworth et al. New concepts on the therapeutic control of complement anaphylatoxin receptors. Molecular Immunology 89 (2017) 36–43. doi.org/10.1016/j.molimm.2017.05.015.

SYMBOLS ON LABEL

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

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® C3a Assay Ready Cells are a stably transfected cell line of human origin classified as a Class 1 Genetically Modified Microorganism. *iLite*® Assay Ready Cells 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 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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