iLite® RANKL Assay Ready Cells

REF: BM4052

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

DESCRIPTION

iLite® RANKL Assay Ready Cells are human embryonic kidney HEK293[1] cells which have been genetically engineered and optimized to be responsive to human soluble RANK Ligand (RANKL), resulting in a proportional expression of Firefly Luciferase. Normalization of cell counts, and serum matrix effects is obtained by a second reporter gene, a Renilla Luciferase reporter gene construct, under control of a constitutive promotor.

CONTENT

>250 µL of 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 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

Receptor activator of nuclear factor kappa-B ligand (RANKL) is a cytokine of the tumor necrosis factor (TNF) superfamily and is expressed in many kinds of tissue, including bone, lung, lymph nodes and mammary glands. It exists in two forms, as a transmembrane protein or in a soluble form, and binds to the receptor activator of nuclear factor kappa B (RANK) which is mainly found at osteoclasts and immune cells.
Osteoprotegerin (OPG), is a soluble decoy factor regulating the RANKL-RANK interaction by binding RANKL and thereby decreasing the binding to RANK. (1)
The RANK/RANKL/OPG cytokine system was discovered in the 1990s and identified for its key role in the bone metabolism through regulation of osteoclastogenesis. Besides bone remodeling, this cytokine system has been shown to play important roles in adaptive immunity, mammary gland development, thermoregulation of the central nervous system as well as tumor cell development and migration. (2)

Primary tumors, in breast and prostate cancers for example, commonly metastasize into the bone. Many cancers utilize the RANKL/RANK/OPG system to promote migration and implantation of cancer cells in the bone and support downregulation of the body's tumor immune surveillance mechanism. (2,3)
Denosumab (trade names Prolia and Xgeva), approved by the FDA in 2010, is a fully human monoclonal antibody to RANKL. It decreases bone turnover markers by blocking the RANKL/RANK pathway. The first approved indication for denosumab was osteoporosis and treatment-induced bone loss. Further clinical studies have led to the approval of denosumab for the prevention of skeletal-related events from bone metastases in cancer. RANKL inhibition is also being investigated for use in combination with other cancer immunotherapies to improve the effect of immune-checkpoint inhibitors targeting CTLA-4, PD-1, or PD-L1. (4,5)

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

Svar Life Science AB
Lundavägen 151
SE-212 24 Malmö
Sweden
P.O. Box 50117
SE-202 11 Malmö
Sweden
info@svarlifescience.com
+46 40 53 76 00

APPLICATION

The *iLite*® RANKL Assay Ready Cells can be used for the quantification of RANKL activity, RANKL inhibitor activity or immunogenicity studies and determination of neutralizing antibody response against RANKL inhibitors in test samples, including human serum.

Application Notes for the following assays are available:

- Quantification of functional RANKL (LABEL-DOC-0503)
- Quantification of RANKL inhibitor (LABEL-DOC-0504)
- Determination of neutralizing antibodies against RANKL inhibitors (LABEL-DOC-0507)

REFERENCES

1. Wu X et al. *RANKL/RANK System-Based Mechanism for Breast Cancer Bone Metastasis and Related Therapeutic Strategies.* Front Cell Dev Biol. 2020 Feb 11;8:76.
2. Antonio G et al. *Immune system and bone microenvironment: rationale for targeted cancer therapies.* Oncotarget. 2020 Jan 28;11(4):480-487.
3. Sisay M et al. *The RANK/RANKL/OPG system in tumorigenesis and metastasis of cancer stem cell: potential targets for anticancer therapy.* Onco Targets Ther. 2017 Jul 27;10:3801-3810.
4. Dempster DW et al. *Role of RANK ligand and denosumab, a targeted RANK ligand inhibitor, in bone health and osteoporosis: a review of preclinical and clinical data.* Clin Ther. 2012 Mar;34(3):521-36.
5. Ahern E et al. *Roles of the RANKL-RANK axis in anti-tumour immunity - implications for therapy.* Nat Rev Clin Oncol. 2018 Nov;15(11):676-693.

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® RANKL 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.

Svar Life Science AB
Lundavägen 151
SE-212 24 Malmö
Sweden

P.O. Box 50117
SE-202 11 Malmö
Sweden

info@svarlifescience.com
+46 40 53 76 00