Recombinant Human AGER-Fc Chimera (carrier-free)

Catalog# / Size	769502 / 10 µg 769506 / 100 µg 769508 / 500 µg
Regulatory Status	RUO
Other Names	Advanced glycosylation end product-specific receptor, Receptor for advanced glycosylation end product, RAGE
Description	Receptor for advanced glycation end products or AGER is a multi-ligand receptor that belongs to the immunoglobulin superfamily of cell surface molecules. AGER is a 55kDa protein composed of three structural regions; a 320 amino acid extracellular region compromised of a V-type domain and two C-type domains, a 22 amino acid transmembrane spanning helix, and a short 41 amino acid cystolic domain. AGER can be found in adult lung and skin tissue but low levels are found in other tissue types such as endothelia, cardiomyocytes, neutrophils, macrophages, lymphocytes, dendritic cells, and the central nervous system. AGER activation induces a positive feedback response to AGER leading to increase in expression of AGER regardless of expression levels. Due to the multi-ligand nature of AGER, the receptor is involved in activation of many cell signal pathways such as ERK1/2, p38, SHPK/JNK MAP Kinases, rho GTPases, phosphoinositol-3-kinase (PI3K), and JAK/STAT. AGER has been found to be involved in pathogenesis and complications that are age related such as diabetes and Alzheimer's, as well as being involved in cellular processes such as inflammation, apoptosis, autophagy, and proliferation. S100 family proteins are small calcium binding proteins with high structural homology that are known to be ligands for AGER. These proteins promote cell growth via p38 MAPK and P44/42 kinase activation in tumor cells and mediate endotoxin induced cardiomyocyte dysfunction in an AGER dependent manner. They also found to amplify pro-inflammatory cytokine production via the activation of NF-kB and P38 MAPK in an AGER dependent manner as well. S100A12 protein, another S100 protein, is found in neutrophils, monocytes and lymphocytes and is shown to be strongly expressed in inflammatory diseases such as Chron's disease, cystic fibrosis, atherosolerosis, and shows RAGE dependent activation as well.

Product Details

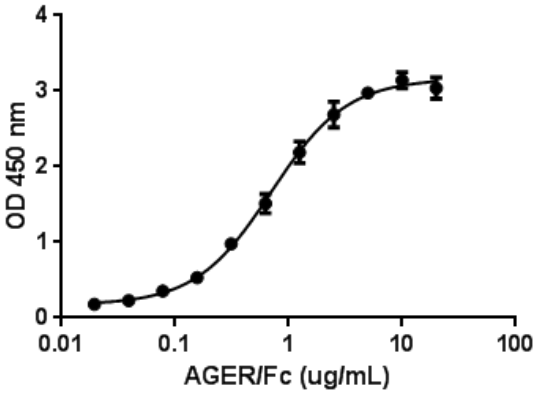
Source	Human AGER, amino acids Gln24-Ala344 (Accession # BC020669) with a C-terminal human IgG1 Fc and 6-His tag was expressed in CHO cells.
Molecular Mass	The 566 amino acid recombinant protein has a predicted molecular mass of approximately 61.8 kD. The DTT-reduced protein migrates at approximately 75 kD and and non-reduced protein migrates at approximately 150 kD by SDS-PAGE. The predicted N-terminal amino acid is Gln.
Purity	> 90%, as determined by Coomassie stained SDS-PAGE.
Formulation	0.22 µm filtered protein solution is in PBS, pH 7.2.
Endotoxin Level	Endotoxin level is <0.1 EU/µg (<0.01 ng/µg) protein as determined by the LAL method.
Concentration	10 and 25 µg sizes are bottled at 200 µg/mL. 100 µg and larger sizes are lot-specific and bottled at the concentration indicated on the vial. To obtain lot-specific concentration, please enter the lot number in our Concentration and Expiration Lookup or Certificate of Analysis online tools.
Storage & Handling	Unopened vial can be stored between 2°C and 8°C for up to 2 weeks, at -20°C for up to six months, or at -70°C or colder until the expiration date. For maximum results, quick spin vial prior to opening. The protein can be aliquoted and stored at -20°C or colder. Stock solutions can also be prepared at 50 - 100 µg/mL in appropriate sterile buffer, carrier protein such as 0.2 - 1% BSA or HSA can be added when preparing the stock solution. Aliquots can be stored between 2°C and 8°C for up to one week and stored at -20°C or colder for up to 3 months. **Avoid repeated freeze/thaw cycles.**
Activity	EC_{50}= 0.4 - 1.6 µg/mL as measured by the ability protein to bind immobilized S100A9 protein (5 µg/mL, Cat. No. 765402).
Application	Bioassay
Application Notes	BioLegend carrier-free recombinant proteins provided in liquid format are shipped on blue-ice. Our comparison testing data indicates that when handled and stored as recommended, the liquid

format has equal or better stability and shelf-life compared to commercially available lyophilized proteins after reconstitution. Our liquid proteins are verified in-house to maintain activity after shipping on blue ice and are backed by our 100% satisfaction guarantee. If you have any concerns, contact us at tech@biolegend.com.

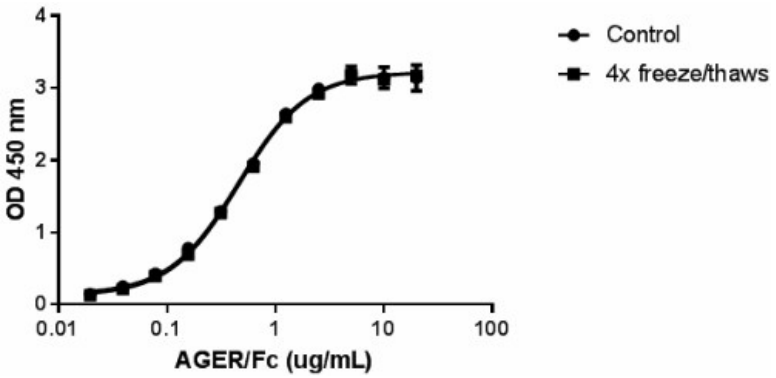
Antigen Details

Structure	Homodimer
Distribution	Endothelial and smooth muscle cells, mononuclear phagocytes, pericytes, microglia, neurons, cardiac myocytes and hepatocytes.
Function	Acts as a mediator of both acute and chronic vascular inflammation in conditions such as atherosclerosis and in particular as a complication of diabetes. AGE/RAGE signaling plays an important role in regulating the production/expression of TNF-alpha, oxidative stress, and endothelial dysfunction in type 2 diabetes. Interaction with S100A12 on endothelium, mononuclear phagocytes, and lymphocytes triggers cellular activation, with generation of key proinflammatory mediators.
Ligand/Receptor	S100A1, S100A8, S100A9, S100B, S100A12, S100A14, and APP.
Bioactivity	Measured by the ability of AGER protein to bind immobilized S100A9.
Molecular Family	Soluble Receptors
Antigen References	1. Yan SD, et al. 1996. Nature 382(6593):685-91. 2. Hofmann MA, et al. 1999. Cell 97:889-901. 3. Taguchi A, et al. 2000. Nature 405(6784):354-60. 4. Piras S, et al. 2016. Oxid. Med. Cell. Longev. 9348651. 5. Ma WQ, et al. 2016. Medicine (Baltimore) 95: e5593. 6. Garg D, Merhi Z. 2016. Reprod Biol Endocrinol. 14: 71. 7. Leclerc E, et al. 2009. Biochim. Biophys. Acta. 993-1007.
Gene ID	177

Product Data



Recombinant human AGER binds immobilized S100A9 (5 µg/mL, Cat. No. 765402) in a dose dependent manner with EC_{50} range of 0.4 - 1.6 µg/mL.



Stability testing for human AGER
Human AGER was aliquoted in PBS, pH 7.2 at 0.2 mg/ml. One aliquot was freeze and thawed four times (4x freeze/thaws), and compared to a control kept at 4°C (control). The samples were tested for their ability to bind immobilized S100A9 (5 µg/mL, Cat. No. 765402).

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