BACKGROUND

AGER (or RAGE), a member of the immunoglobulin superfamily of cell surface molecules, is a receptor for various molecules, including the amyloidogenic form of serum amyloid A, amyloid-beta protein, members of the S100/calgranulin superfamily, amphoterin, and AGE products. It consists of three Ig-domains (V, C1 and C2), a transmembrane domain and a cytosolic tail required for RAGE-mediated intracellular signaling. The V and C1 domains in the extracellular region of RAGE form an integrated structural unit, while C2 is fully independent, attached to VC1 through a flexible linker. Various ligands bind to the V domain, while some also interact with the V-C1 or V-C2 domains. The V domain has N-glycosylation sites both of which are modified. Ligand binding activates multiple signaling pathways and regulates gene expression through the transcription factors NF-kappaB, CREB and SP1. RAGE is highly expressed during embryonic development, especially in the brain, but levels decrease in adult tissues. RAGE is found at low levels in neurons, endothelial cells, mononuclear phagocytes, smooth muscle cells, and constitutively expressed at high levels in the lung.[1]

Normal physiological functions of RAGE include embryonal neuronal growth, myogenesis, mobilization of dendritic cells, activation and differentiation of T cells, stem cell migration and osteoclast maturation. HMGB1 interaction of RAGE results in stimulation of myogenesis. RAGE mediates trophic and toxic effects of S100B on embryonal neurons, and promotes neurite outgrowth and neuronal regeneration promoted by HMGB1. RAGE also plays an important role in the regulation of osteoclast maturation and function, and bone remodeling. Ligand interaction promotes activation of intracellular signaling pathways including the MAPK pathway, RAC-1 and CDC42, NADPH oxidase, PI3 kinase and JAK/STAT pathway, and activation of NF-kappaB. RAGE expression is induced in inflammatory settings, since its transcription is controlled by several transcription factors as mentioned above. Thus a positive feed-forward loop evolves in ligand rich inflammatory settings, perpetuating the pathology. sRAGE is believed to regulate signaling mediated by activation of full length RAGE. Binding of RAGE to HMGB1 induces RAGE shedding by ADAM10 metalloprotease, thus possibly representing another pathway for negatively regulating RAGE mediated cellular activation.[2] Many RAGE ligands are expressed and secreted not only by cancer cells but also by cells within the tumor microenvironment, including myeloid derived cells and vascular cells. These ligands interact with the receptor in both autocrine and paracrine manners, promoting tumor growth, invasion, angiogenesis and metastasis. RAGE and its ligands are highly enriched in immune and inflammatory foci and their interaction promotes upregulation of inflammatory cytokines, adhesion molecules and matrix metalloproteinases. They are therefore implicated in many inflammatory conditions. It was also involved in diabetes, atherosclerosis, ischemia, and neuronal degeneration.[3]

References:

1. Bierhaus, A. et al: J. Mol. Med. 83:876-86, 2005
2. Gebhardt, C. et al: J. Exp. Med. 205:275-85, 2008
3. Bierhaus. A. et al: Curr. Opin. Investig. Drugs 7:985-91, 2006

TECHNICAL INFORMATION

Source: Anti-RAGE is produced in rabbits immunized with a synthetic peptide corresponding to a sequence at the N-terminal of human advanced glycosylation end-product-specific receptor (RAGE) , different from the related rat sequence by two amino acids. RAGE specific antibody was purified by peptide affinity chromatography.

Specificity and Sensitivity: Anti-RAGE reacts specifically with RAGE of human, mouse & rat origin in immunostaining and Western blot applications.

Storage Buffer: 10mM HEPES (pH 7.5), 150mM NaCl, 100µg/ml BSA and 200µg/ml sodium azide

Storage: Store at -20°C for at least one year. Store at 4°C for frequent use. Avoid repeated freeze-thaw cycles.

APPLICATIONS

Application:	*Dilution:
WB	1:500 – 1:1000
IP	n/d
IHC	1:50 – 1:200
ICC	n/d
FACS	n/d

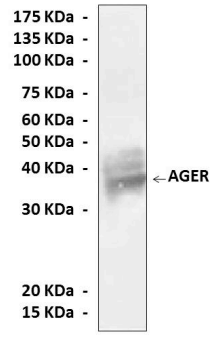
**Optimal dilutions must be determined by end user.*

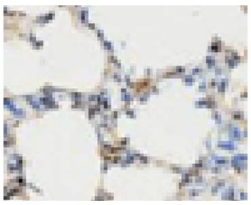
AGER Antibody

Cat. No. CA1789

Applications:	**WB, IHC**
Detected MW:	**38 kDa**
Species & Reactivity:	**Human, Rat, Mouse**
Isotype:	**Rabbit IgG**

QUALITY CONTROL DATA





Top: Detection of Angiopoietin-1 from rat cardiac tissue lysate in Western blot assay, using Anti-ANG-1. **Bottom:** Immunohistochemical staining of paraffin-embedded rat lung tissue (smooth muscle of blood vessel) using Anti-ANG-1 Antibody.