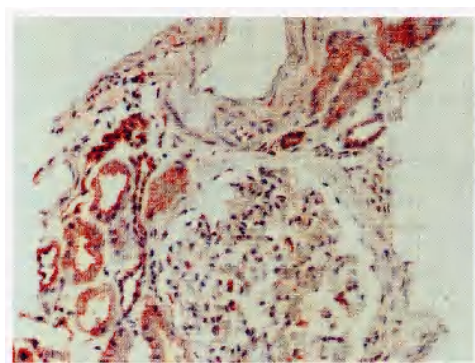


Advanced Glycation End Products (AGEs)  
**Anti AGEs Monoclonal Antibody (Clone No. 6D12)**

Reaction of protein amino groups with glucose leads, through the early products such as a Schiff base and Amadori rearrangement products, to the formation of advanced glycation end products (AGEs). Recent immunological studies using anti-AGEs antibody (6D12) demonstrated the presence of AGEs-modified proteins in several human tissues: ( i ) human lens (nondiabetic and noncataractous), ( ii ) renal proximal tubules in patients with diabetic nephropathy and chronic renal failure, ( iii ) diabetic retina, ( iv ) peripheral nerves of diabetic neuropathy, ( v ) atherosclerotic lesions of arterial walls, ( vi )  $\beta$  2-microglobulin forming amyloid fibrils in patients with hemodialysis-related amyloidosis, ( vii ) senile plaques of patients with Alzheimer's disease, ( viii ) the peritoneum of CAPD patients, ( ix ) skin elastin in actinic elastosis, and ( x ) ceroid/lipofuscin deposits. These results suggest a potential role of AGEs-modification in normal aging as well as age-enhanced disease processes. This antibody named as 6D12 has been used to demonstrate AGEs-modified proteins in these human tissues, indicating potential usefulness of this antibody for histochemical identification and biochemical quantification of AGEs-modified proteins.

Package Size	10 $\mu$ g (40 $\mu$ L/vial)
Format	Mouse monoclonal antibody 0.25 mg/mL
Buffer	Block Ace as a stabilizer, containing 0.1%Proclin as bacteriostat
Storage	Store below -20°C Once thawed, store at -4°C. Repeated freeze-thaw cycles should be avoided.
Clone No.	6D12
Subclass	IgG1
Purification Method	The splenic lymphocytes from BALB/c mouse, immunized with AGEs-BSA were fused to myeloma P3U1 cells. The hybrid cells were screened, and the cell line (6D12) with positive reaction to AGEs-human serum albumin but negative to BSA was selected through successive subclonings and grown in ascitic fluid of BALB/c mouse, from which the anti-AGEs antibody was purified by Protein G affinity chromatography. (Reference No.1)

Working dilution for immunohistochemistry: 2 $\mu$ g /mL; for ELISA: 0.1-0.5 $\mu$ g /mL; for WB : 0.25-5 $\mu$ g /mL



Immunohistochemical staining of renal proximal tubules and glomeruli in patients with diabetic nephropathy, using anti-AGEs antibody 6D12

Yamada, K. et al.,

*Clinical nephrology*, Vol.42, 354-361, 1994



Immunohistochemical staining of the early stage of human atherosclerotic lesions of the aorta with anti-AGEs antibody 6D12.

Kume, S. et al,

*Atherosclerosis*, Vol.107, 161-167, 1995

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**【Specificity】**

The initial study (Ref. 1) revealed that 6D12 does not recognize early products (Schiff base and Amadori products), but shows a positive reaction to AGEs-samples obtained either from proteins, lysine derivatives or monoamino-carboxylic acids, indicating the immunospecificity to a common structure among AGEs-structures. The subsequent study (Ref. 10) revealed of 6D12 is an N<sup>ε</sup>-carboxymethyllysine (CML)-protein adduct.

**【Reference】**

1. Horiuchi, S. et al.: Immunochemical approach to characterize advanced glycation end products of the Maillard reaction; Evidence for the presence of a common structure. *J. Biol. Chem.* 266: 7329, 1991. 2. Araki, N. et al.: Immunochemical evidence for the presence of advanced glycation end products in human lens proteins and its positive correlation with aging. *J. Biol. Chem.* 267: 10211, 1992. 3. Miyata, T. et al.:  $\beta_2$ -Microglobulin modified with advanced glycation end products is a major component of hemodialysis-associated amyloidosis. *J. Clin. Invest.* 92: 1243, 1993. 4. Yamada, K. et al.: Immunohistochemical study of human advanced glycosylation end-products (AGE) in chronic renal failure. *Clin. Nephrol.* 42: 354, 1994. 5. Kume, S. et al.: Immunohistochemical and ultrastructural detection of advanced glycation end products in atherosclerotic lesions of human aorta using a novel specific monoclonal antibody. *Am. J. Pathol.* 147: 654, 1995. 6. Makino, H. et al.: Ultrastructure of nonenzymatically glycated mesangial matrix in diabetic nephropathy. *Kidney International* 48: 517, 1995. 7. Mori, T. et al.: Localization of advanced glycation end products of Maillard reaction in bovine tissues and their endocytosis by macrophage scavenger receptors. *Exp. Molec. Pathol.* 63:135, 1995. 8. Miyata, T. et al.: Identification of pentosidine as a native structure for advanced glycation end products in  $\beta_2$ -Microglobulin forming amyloid fibrils in patients with dialysis-related amyloidosis. *Proc. Natl. Acad. Sci. USA.* 93: 2353, 1996. 9. Kimura, T. et al.: Accumulation of advanced glycation end products of the Maillard reaction with age in human hippocampal neurons. *Neurosci. Lett.* 208: 53, 1996. 10. Ikeda, K. et al.: N<sup>ε</sup>-(carboxymethyl) lysine protein adduct is a major immunological epitope in proteins modified with advanced glycation end products of the Maillard reaction. *Biochemistry* 35: 8075, 1996. 11. Horiuchi, S. et al.: AGE modified proteins and their potential relevance to atherosclerosis. *Trends Cardiovasc. Med.* 6: 163, 1996. 12. Hammes, H-P et al.: Modification of vitronectin by advanced glycation alters functional properties in vitro and in the diabetic retina. *Lab. Invest.* 75: 325, 1996. 13. Kimura, T. et al.: Identification of advanced glycation end products of the Maillard reaction in Pick's disease. *Neurosci. Lett.* 219: 95, 1996. 14. Nakayama, M. et al.: immunohistochemical detection of advanced glycosylation end-products in the peritoneum and its possible pathophysiological role in CAPD. *Kidney International* 51: 182, 1997. 15. Mizutani, K. et al.: Photo-enhanced modification of human skin elastin in actinic elastosis by N<sup>ε</sup>-(carboxymethyl)lysine, one of the glycoxidation products of the Maillard reaction. *J. Invest. Dermatol.* 108: 797, 1997. 16. Murata, T. et al.: The relationship between expression of advanced glycation end products and vascular endothelial growth factor in human diabetic retinas. *Diabetologia* 40: 764, 1997. 17. Sugimoto, K. et al.: Localization in human diabetic peripheral nerve of N<sup>ε</sup>-carboxymethyllysine-protein adducts, one of advanced glycation endproducts. *Diabetologia* 40: 1380, 1997. 18. Shimokawa, I. et al.: Advanced glycosylation end-products in adrenal lipofuscin. *J. Gerontol.* 51A: B49, 1998. 19. Yoshida, S. et al.: Immunohistochemical study of human advanced glycation end-products and growth factors in cardiac tissues of patients on maintenance dialysis and with kidney transplantation. *Clin. Nephrol.* 49: 273, 1998. 20. Matsuse, S. et al.: immunohistochemical localisation of advanced glycation end products in pulmonary fibrosis. *J. Clin. Pathol.* 51:515, 1998

**Supplier**

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