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Code No.KH001-01

For research use only

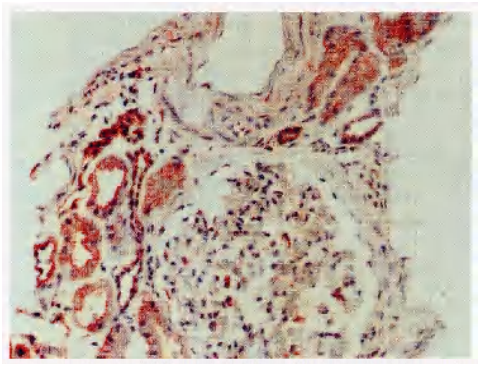
Advanced Glycation End Products （AGEs）

Anti AGEs Monoclonal Antibody（Clone No. 6D12）Biotin conjugated

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) β 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) ceriod/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	10µg (40µL/vial)
Format	Mouse monoclonal antibody, Biotin conjugated 0.25 mg/mL
Buffer	Block Ace as a stabilizer, containing 0.1%Proclin as bacteriostat
Storage	Store below –20℃ Once thawed, store at –4℃. 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) and conjugated.

Working dilution for immunohistochemistry: 2µg /mL; for ELISA: 0.1-0.5µg /mL; for WB : 0.25-5µg /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 th eary stage of human athrosclerotic lesions of the aorta with anti-AGEs antibody 6D12.

Kume, S. et al,

American Journal of Pathology, Vol.147, 654-667, 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^{ε} - 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.: β_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 ultrasturactural 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 grycated mesangial matrix in diabetic nephropathy. Kidney International 48: 517, 1995. **7**. Mori, T. et al.: Localization of advanced grycation 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 β_2-Microglobulin forming amyloid fibrils in patients with dialysis-related amyloidsis. 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^{ε}-(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 grycation end products of the Maillard reaction in Pick's disease. Neurosci. Lett. 219: 95, 1996. **14**. Nakayama, M. et al.: immunohistochemical detection of advanced grycosylation end-products in the peritoneum and its possible pathophysiological role in CAPD. Kidney Intentional 51: 182, 1997. **15**. Mizutani, K. et al.: Photo-enhanced modification of human skin elastin in actinic elastosis by N^{ε} - (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^{ε}-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

SCETI

SCETI K.K.

3-6-7 Kasumigaseki, Chiyoda-ku, Tokyo 100-0013, JAPAN

Tel +81(3) 5510-2347　Fax +81(3) 5510-0133

URL: http://www.sceti.jp/export/　e-mail: exp-pet@sceti.co.jp