

Human S100A3 Mouse Monoclonal Antibody (Clone YK-3E3)

Cat# CY-M1039

100 µg (1.0 mg/mL x 100 µL)

Clone Name	Applications	Species Cross-Reactivity	Molecular Wt.	Source Isotype
YK-3E3	WB, E	H	1.1-1.3 kDa	Mouse IgG1

Background

The S100 proteins comprise a family of 25 small acidic proteins (9–13 kDa) that are characterized by the presence of two calcium-binding EF-hand motifs. Among the different human S100 genes, 22 are clustered at chromosome locus 1q21 (3), a region frequently involved in chromosomal rearrangement in cancers. Thirteen S100 proteins (S100A2, S100A3, S100A4, S100A6, S100A7, S100A8, S100A9, S100A10, S100A11, S100A12, S100A15, S100B, and S100P) are expressed in normal and/or diseased epidermis.

The protein S100A3, formerly called S100E, was recognized for the first time as the product of one of the tightest gene clusters discovered in the human genome located on chromosome 1q21 (1). The S100A3 gene shows a low but general transcription level in diaphragm, heart, skeletal muscle, stomach, lung, liver, fat tissue, and placenta. S100A3 shows a remarkably narrow tissue- and cell-specific expression pattern. It is highly expressed in hair root cells (2-4) and some astrocytomas (5). Because both cell types are characterized by high proliferation rates S100A3 is supposed to be involved in cell cycle progression. Within the S100 subfamily S100A3 is unique for the exceptionally high number of Cys residues. Despite the Cys frequency, S100A3 does not display the classical zinc-binding motifs seen in metallothioneins (6), DNA-binding proteins (7), or protein kinase C (8).

Specificity/Sensitivity: The Human S100A3 Monoclonal Antibody detects endogenous S100A3 by western blotting and sandwich ELISA.

Source/Purification: The antibody is produced by immunizing mice with a recombinant full length human S100A3. IgG is purified by protein A-Sepharose chromatography.

Recommended Antibody Dilutions: Western blotting: 0.5-1 µg/mL

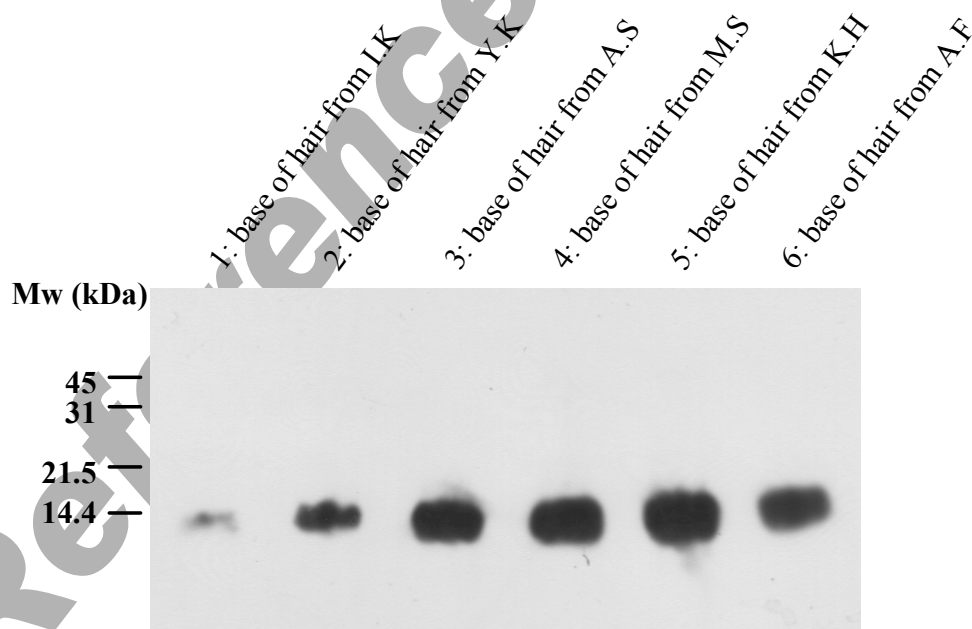
Storage: Supplied in 20 mM phosphate buffer (pH 7.5), 300 mM NaCl, 50 % glycerol. Store at –20°C.

Applications Key: WB: Western IP: Immunoprecipitation IHC: Immunohistochemistry IC: Immunocytochemistry F: Flow cytometry E: ELISA FP: Fluorescence Polarization assay

Species Cross-Reactivity Key: H: human M: mouse R: rat Hm: hamster Mk: monkey Mi: mink C: chicken X: *Xenopus* Z: zebra fish All: all species expected Species enclosed in parentheses are predicted to react based on 100% sequence homology.

General References:

1. Engelkamp, D., Schafer, B. W., Mattei, M. G., Erne, P. and Heizmann, C.W. (1993) Proc. Nat. Acad. Sci. 90: 6547-6551
2. Kizawa K, Uchiwa H, Murakami U (1996) Highly-expressed S100A3, a calcium-binding protein, in human hair cuticle. Biochim Biophys Acta 1312: 94-98
3. Kizawa K, Tsuchimoto S, Hashimoto K, Uchiwa H (1998) Gene expression of mouse S100A3, a cysteine-rich calcium-binding protein, in developing hair follicle. J Invest Dermatol 111: 879-886
4. Boni R., Burg G., Doguoglu A., Ilg EC., Schafer BW., Muller B., and Heizmann CW. (1997) Br. J. Dermatol. 137: 39-43
5. Camby I, Nagy N., Lopes MB., Schafer BW., Maurage CA., Ruchoux MM., Murmann P., Pochet R., Heizmann CW., Brotchi J., Salmon I., Kiss R. and Decaestecker C. (1999) Brain Pathol. 9: 1-19
6. Vallee B. L. and Auld D. S. (1990) Biochemistry 29: 5647-5659
7. Pérez-Alvarado G., Miles C., Michelsen J. W., Heather A. L., Winge D. R., Beckerle M. C., Summers M. F. (1944) Nature Struct. Biol. 1: 389-399
8. Hommel U., Zurini M. and Luyten M. (1944) Nature Struct. Biol. 1: 384-388

Fig.1 Western blot analysis of Human S100A3 in hair extracts from 5 individual female

Western Immunoblotting Protocol

Solutions and Reagents

Note: Prepare solutions with Milli-Q or equivalently purified water.

Transfer Buffer: 25 mM Tris base, 0.2 M glycine, 20% methanol (pH 8.5)

SDS Sample Buffer (1X): 62.5 mM Tris-HCl (pH 6.8 at 25°C), 2% w/v SDS, 10% glycerol, 50 mM DTT, 0.01% w/v bromophenol blue or phenol red

Blocking Buffer: 1X TBS, 0.1% Tween-20 with 5% w/v nonfat dry milk; for 150 mL, add 15 mL 10X TBS to 135 mL water, mix. Add 7.5 g nonfat dry milk and mix well. While stirring, add 0.15 mL Tween-20 (100%).

10X TBS (Tris-buffered saline): To prepare 1 liter of 10X TBS: 24.2 g Tris base, 80 g NaCl; adjust pH to 7.6 with HCl (use at 1X).

Primary Antibody Dilution Buffer: 1X TBS, 0.1% Tween-20 with 5% blocking agent for 20 mL, add 2 mL 10X TBS to 18 mL water, mix. Add 1.0 g BSA and mix well. While stirring, add 20 μ L Tween-20 (100%).

Chemiluminescent HRP Detection: secondary anti-rabbit antibody conjugated to horseradish peroxidase (HRP), ECL™ chemiluminescent reagent (Amersham Pharmacia)

Wash Buffer TBS/T: 1X TBS, 0.1% Tween-20

Blotting Membrane: This protocol has been optimized for nitrocellulose membranes, which we recommend. PVDF membranes may also be used.

Protein Blotting: A general protocol for sample preparation is described below.

1. Cut an appropriate amount of hairs by a pair of scissors.
2. Weigh the hairs.
3. Lyse the hairs by adding 1X SDS Sample Buffer (100 μ L per 6 mg hairs).
4. Heat a 100 μ L sample to 95–100°C for 5 minutes, cool on ice.
6. Microcentrifuge for 5 minutes.
7. Load 10 μ L per 1 lane onto SDS-PAGE gel then electrophorese.
8. Electrotransfer to nitrocellulose membrane.

Membrane Blocking and Antibody Incubations

Note: Volumes are for 10 cm x 10 cm (100 cm²) of membrane; for different sized membranes, adjust volumes accordingly.

1. (Optional) After transfer, wash nitrocellulose membrane with 25 mL TBS for 5 minutes at room temperature.
2. Incubate membrane in 25 mL of Blocking Buffer for 1 hour at room temperature.
3. Wash 3 times for 5 minutes each with 15 mL of TBS/T.
4. Incubate membrane and primary antibody (at the appropriate dilution) in 10 mL Primary Antibody Dilution Buffer with gentle agitation overnight at 4°C.
5. Wash 3 times for 5 minutes each with 15 mL of TBS/T.
6. Incubate membrane with HRP-conjugated secondary antibody (1:3000 in 10 mL of Blocking Buffer with gentle agitation for 1 hour at room temperature.
7. Wash 3 times for 5 minutes each with 15 mL of TBS/T.

Detection of Proteins

1. Incubate membrane with 4 mL ECL™ with gentle agitation for 1 minute at room temperature.
2. Drain membrane of excess developing solution, do not let dry, wrap in plastic wrap and expose to x-ray film. An initial ten-second exposure should indicate the proper exposure time.

Related Products

- * CircuLex S100A13 ELISA Kit: Cat# CY-8057
- * CircuLex S100A12 ELISA Kit: Cat# CY-8058
- * CircuLex S100P ELISA Kit: Cat# CY-8060
- * CircuLex S100A8-MRP8 ELISA Kit: Cat# CY-8061
- * CircuLex S100A9-MRP14 ELISA Kit: Cat# CY-8062
- * CircuLex S100A11 ELISA Kit: Cat# CY-8063
- * CircuLex S100A14 ELISA Kit: Cat# CY-8064
- * CircuLex S100A7/Psoriasis ELISA Kit: Cat# CY-8073
- * CircuLex S100A4 ELISA Kit Ver.2: Cat# CY-8086

- * Anti-Human S100A3 (Clone YK-3E3): Cat# CY-M1039
- * Anti-Human S100A4 (p9Ka): Cat# CY-P1026
- * Anti-Human S100P: Cat# CY-P1028
- * Anti-Human S100A10: Cat# CY-P1033
- * Anti-Human S100A16: Cat# CY-P1034
- * Anti-Human S100A3: Cat# CY-P1039
- * Anti-Human S100A2: Cat# CY-P1040

- * Human S100B: Cat# CY-R2250
- * Human S100A1: Cat# CY-R2251
- * Human S100A2: Cat# CY-R2252
- * Human S100A3: Cat# CY-R2253
- * Human S100A4: Cat# CY-R2254
- * Human S100A5: Cat# CY-R2255
- * Human S100A6: Cat# CY-R2256
- * Human S100A7: Cat# CY-R2257
- * Human S100A8: Cat# CY-R2258
- * Human S100A9: Cat# CY-R2259-G
- * Human S100A9: Cat# CY-R2259-H
- * Human S100A10: Cat# CY-R2260
- * Human S100A12: Cat# CY-R2262-G
- * Human S100A12: Cat# CY-R2262-H
- * Human S100A13: Cat# CY-R2263
- * Human S100A14: Cat# CY-R2264
- * Human S100A16: Cat# CY-R2266
- * Human S100P: Cat# CY-R2267
- * Human S100A11: Cat# CY-R2269

- * Human S100A1 Low Endotoxin: Cat# CY-R2451
- * Human S100A3 Low Endotoxin: Cat# CY-R2453
- * Human S100A4 Low Endotoxin: Cat# CY-R2454
- * Human S100A7 Low Endotoxin: Cat# CY-R2457
- * Human S100A8 Low Endotoxin: Cat# CY-R2458
- * Human S100A9 Low Endotoxin: Cat# CY-R2459-G
- * Human S100A11 Low Endotoxin: Cat# CY-R2461
- * Human S100A12 Low Endotoxin: Cat# CY-R2462-G
- * Human S100A14 Low Endotoxin: Cat# CY-R2464
- * Human S100P Low Endotoxin: Cat# CY-R2467



Human S100A3 Mouse Monoclonal Antibody

Product Data Sheet

For Research Use Only, Not for use in diagnostic procedures

PRODUCED BY

CycLex Co., Ltd.
1063-103 Terasawaoka
Ina, Nagano 396-0002
Japan
Fax: +81-265-76-7618
e-mail: info@cyclex.co.jp
URL: <http://www.cyclex.co.jp>

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