

## ESD (6-RE43): sc-134333

### BACKGROUND

ESD (esterase D) is also known as S-formylglutathione hydrolase and is a 282 amino acid protein that is a member of the esterase D family. ESD is highly expressed in placenta, kidney, liver and erythrocytes, and is localized to the cytoplasm, as well as to cytoplasmic vesicles. The main function of ESD is to detoxify formaldehyde while providing energy. Formaldehyde is oxidized by ADH5 which yields S-formylglutathione. ESD then catalyzes the hydrolysis of S-formylglutathione to the reduced forms of formic acid and glutathione. In addition, ESD hydrolyzes a variety of different neutral ester substrates and can act as a carboxylesterase. ESD may also act as a cysteine hydrolase which is inactivated by thiol alkylating agents. ESD gene polymorphism can lead to reduced enzymatic activity which may cause susceptibility to many conditions, including toxic liver cirrhosis, retinoblastoma, obesity and autism.

### REFERENCES

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- Okunuki, Y., et al. 2008. Proteomic surveillance of retinal autoantigens in endogenous uveitis: implication of esterase D and brain-type creatine kinase as novel autoantigens. *Mol. Vis.* 14: 1094-1104.

### CHROMOSOMAL LOCATION

Genetic locus: ESD (human) mapping to 13q14.2.

### SOURCE

ESD (6-RE43) is a mouse monoclonal antibody raised against recombinant ESD protein of human origin.

### PRODUCT

Each vial contains 100 µg IgG<sub>2a</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

### APPLICATIONS

ESD (6-RE43) is recommended for detection of ESD of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for ESD siRNA (h): sc-105338, ESD shRNA Plasmid (h): sc-105338-SH and ESD shRNA (h) Lentiviral Particles: sc-105338-V.

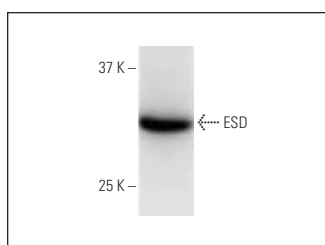
Molecular Weight of ESD: 31 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204.

### RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

### DATA



ESD (6-RE43): sc-134333. Western blot analysis of ESD expression in Jurkat whole cell lysate.

### SELECT PRODUCT CITATIONS

- Yang, Y., et al. 2021. Esterase D stabilizes FKBP25 to suppress mTORC1. *Cell. Mol. Biol. Lett.* 26: 50.
- Yao, W., et al. 2023. Esterase D interacts with metallothionein 2A and inhibits the migration of A549 lung cancer cells *in vitro*. *J. Cell. Biochem.* E-published.

### STORAGE

Store at 4° C, \*\*DO NOT FREEZE\*\*. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

### RESEARCH USE

For research use only, not for use in diagnostic procedures.