SANTA CRUZ BIOTECHNOLOGY, INC.

AID (2D3): sc-101417

BACKGROUND

Activation-induced cytidine deaminase (AID, HIGM-2) is a 198 amino acid, RNA-editing enzyme that contains a conserved cytidine deaminase motif and plays an important role in B cell terminal differentiation. AID is expressed in germinal center B cells and contributes to the production of neutralizing antibodies IgG, IgA and IgE. Hyper-IgM syndrome (HIGM2) patients that have deficient levels of AID show the absence of immunoglobulin class switch recombination (CSR), lack of immunoglobulin somatic hypermutations and lymph node hyperplasia mediated by the presence of giant germinal centers. Furthermore, AID$^{-/-}$ mice are defective in CSR and also show a hyper-IgM phenotype, characterized by enlarged germinal centers containing active B cells. AID thus appears to be required in several stages of B cell terminal differentiation that are necessary for efficient antibody responses such as B cell proliferation, immunoglobulin somatic hypermutations and CSR.

REFERENCES

1. Muramatsu, M., et al. 1999. Specific expression of activation-induced cytidine deaminase (AID), a novel member of the RNA-editing deaminase family in germinal center B cells. J. Biol. Chem. 274: 18470-18476.
2. Muramatsu, M., Sankaranand, V.S., Anant, S., Sugai, M., Kinoshita, K., Davidson, N.O. and Honjo, T. 2000. Class switch recombination and hypermutation require activation-induced cytidine deaminase (AID), a potential RNA editing enzyme. Cell 102: 553-563.
3. Minegishi, Y., Lavoie, A., Cunningham-Rundles, C., Bedard, P.M., Hebert, J., Cote, L., Dan, K., Sedlak, D., Buckley, R.H., Fischer, A., Durandy, A. and Conley, M.E. 2000. Mutations in activation-induced cytidine deaminase in patients with hyper-IgM syndrome. Clin. Immunol. 97: 203-210.
4. Revy, P., Muto, T., Levy, Y., Geissmann, F., Plebani, A., Sanal, O., Catalan, N., Forveille, M., Dufourcq-Labelouse, R., Gennery, A., Tezcan, I., Ersoy, F., Kayserili, H., et al. 2000. Activation-induced cytidine deaminase (AID) deficiency causes the autosomal recessive form of the hyper-IgM syndrome (HIGM2). Cell 102: 565-575.
5. Muto, T., Muramatsu, M., Taniwaki, M., Kinoshita, K. and Honjo, T. 2000. Isolation, tissue distribution, and chromosomal localization of the human activation-induced cytidine deaminase (AID) gene. Genomics 68: 85-88.

CHROMOSOMAL LOCATION

Genetic locus: AICDA (human) mapping to 12p13.31.

SOURCE

AID (2D3) is a mouse monoclonal antibody raised against a recombinant protein representing amino acids 1-54 of AID of human origin.

PRODUCT

Each vial contains 50 µg IgG_1 kappa light chain in 0.5 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

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

APPLICATIONS

AID (2D3) is recommended for detection of AID 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 AID siRNA (h): sc-42729, AID shRNA Plasmid (h): sc-42729-SH and AID shRNA (h) Lentiviral Particles: sc-42729-V.

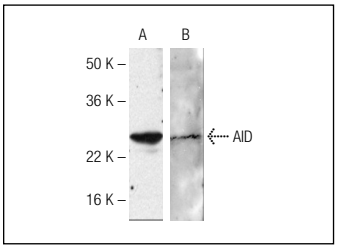
Molecular Weight of AID: 24 kDa.

Positive Controls: Daudi cell lysate: sc-2415, Hep G2 cell lysate: sc-2227 or Ramos cell lysate: sc-2216.

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, TBS Blotto A Blocking Reagent: sc-2333 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



AID (2D3): sc-101417. Western blot analysis of AID expression in Hep G2 (**A**) and Ramos (**B**) whole cell lysates.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.