SANTA CRUZ BIOTECHNOLOGY, INC.

Syk (4D10): sc-1240

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Syk (spleen tyrosine kinase) is a 635 amino acid protein that contains one protein kinase domain and two SH2 domains. One of several members of the protein kinase superfamily, Syk functions as a positive effector of B cell antigen receptor (CD79)-stimulated responses, coupling CD79 with the movement of one calcium ion through one of two phospho-regulated pathways. Specifically, calcium ions travel through either a phosphoinositide 3-kinase (PI 3-kinase)-dependent pathway when Syk is not phosphorylated, or through a phospholipase C (PLC) γ-dependent pathway when human Syk is phohsphorylated on Tyr 348 and Tyr 352. Via its ability to influence CD79 activity and to control the movement of calicum through the cell, Syk plays an important role in a variety of cellular responses, including differentiation, phagocytosis, proliferation and B cell development. Syk expression is upregulated in T cell lymphoma, suggesting a possible role for Syk in tumorigenesis. Two isoforms of Syk, designated short and long, exist due to alternative splicing events.

CHROMOSOMAL LOCATION

Genetic locus: SYK (human) mapping to 9q22.2; Syk (mouse) mapping to 13 A5.

SOURCE

Syk (4D10) is a mouse monoclonal antibody raised against amino acids 313-339 of Syk of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Syk (4D10) is available conjugated to agarose (sc-1240 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-1240 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-1240 PE), fluorescein (sc-1240 FITC), Alexa Fluor® 488 (sc-1240 AF488), Alexa Fluor® 546 (sc-1240 AF546), Alexa Fluor® 594 (sc-1240 AF594) or Alexa Fluor® 647 (sc-1240 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-1240 AF680) or Alexa Fluor® 790 (sc-1240 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

Syk (4D10) is recommended for detection of Syk of mouse, rat and 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)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and flow cytometry (1 µg per 1 x 10^6 cells).

Suitable for use as control antibody for Syk siRNA (h): sc-29501, Syk siRNA (m2): sc-44328, Syk shRNA Plasmid (h): sc-29501-SH, Syk shRNA Plasmid (m2): sc-44328-SH, Syk shRNA (h) Lentiviral Particles: sc-29501-V and Syk shRNA (m2) Lentiviral Particles: sc-44328-V.

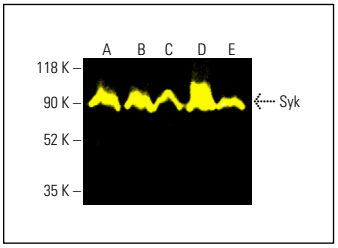
Molecular Weight of Syk: 72 kDa.

Positive Controls: NAMALWA cell lysate: sc-2234, Ramos cell lysate: sc-2216 or Raji whole cell lysate: sc-364236.

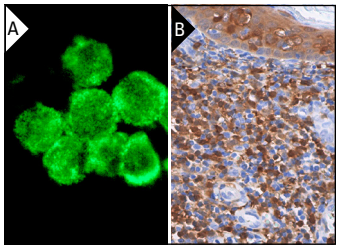
STORAGE

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

DATA



Syk (4D10): sc-1240. Fluorescent western blot analysis of Syk expression in THP-1 (**A**), NAMALWA (**B**), Ramos (**C**), Raji (**D**) and K-562 (**E**) whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214. Detection reagent used: m-IgG Fc BP-CFL 488: sc-533653.



Syk (4D10): sc-1240. Immunofluorescence staining of methanol-fixed BJAB cells showing cytoplasmic staining (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human tonsil tissue showing cytoplasmic and nuclear staining of cells in non-germinal center and squamous epithelial cells (**B**).

SELECT PRODUCT CITATIONS

1. Kenison, D.C., et al. 1991. Tumor necrosis factor as a potential mediator of acute metabolic and hormonal responses to endotoxemia in calves. Am. J. Vet. Res. 52: 1320-1326.
2. Cheng, A.C., et al. 2017. CLEC9A modulates macrophage-mediated neutrophil recruitment in response to heat-killed *Mycobacterium tuberculosis* H37Ra. PLoS ONE 12: e0186780.
3. Barbhuiya, M.A., et al. 2018. Identification of spleen tyrosine kinase as a potential therapeutic target for esophageal squamous cell carcinoma using reverse phase protein arrays. Oncotarget 9: 18422-18434.
4. Schweig, J.E., et al. 2019. Spleen tyrosine kinase (Syk) blocks autophagic Tau degradation *in vitro* and *in vivo*. J. Biol. Chem. 294: 13378-13395.
5. Izquierdo, I., et al. 2020. A comprehensive tyrosine phosphoproteomic analysis reveals novel components of the platelet CLEC-2 signaling cascade. Thromb. Haemost. 120: 262-276.
6. Liu, S., et al. 2021. Critical role of Syk-dependent Stat1 activation in innate antiviral immunity. Cell Rep. 34: 108627.
7. Denis, V., et al. 2022. Targeting the splicing isoforms of spleen tyrosine kinase affects the viability of colorectal cancer cells. PLoS ONE 17: e0274390.
8. Chang, H.W., et al. 2023. Thalidomide attenuates mast cell activation by upregulating SHP-1 signaling and interfering with the action of CRBN. Cells 12: 469.
9. Yamaguchi, T., et al. 2024. Syk inhibitors reduce tau protein phosphorylation and oligomerization. Neurobiol. Dis. 201: 106656.

RESEARCH USE

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