SANTA CRUZ BIOTECHNOLOGY, INC.

Syk (SYK-01): sc-51703

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 phohspho-rylated 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 (SYK-01) is a mouse monoclonal antibody raised against amino acids 5-360 of Syk of human origin.

PRODUCT

Each vial contains 100 µg IgG_1 in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

Syk (SYK-01) is recommended for detection of Syk of mouse, rat and human origin by Western Blotting (non-reducing) (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 immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

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: Syk (h): 293 Lysate: sc-111124, BJAB whole cell lysate: sc-2207 or NAMALWA cell lysate: sc-2234.

STORAGE

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

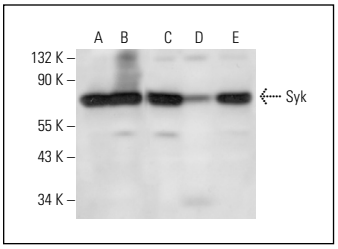
PROTOCOLS

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

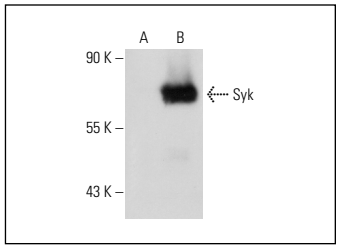
RESEARCH USE

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

DATA



Syk (SYK-01): sc-51703. Western blot analysis of Syk expression in BJAB (**A**), Raji (**B**), NAMALWA (**C**), A-431 (**D**) and Ramos (**E**) whole cell lysates.



Syk (SYK-01): sc-51703. Western blot analysis of Syk expression in non-transfected: sc-110760 (**A**) and human Syk transfected: sc-111124 (**B**) 293 whole cell lysates.

SELECT PRODUCT CITATIONS

1. Agrawal, R., et al. 2008. TULA proteins regulate activity of the protein tyrosine kinase Syk. J. Cell. Biochem. 104: 953-964.
2. Wex, E., et al. 2011. Induced Syk deletion leads to suppressed allergic responses but has no effect on neutrophil or monocyte migration *in vivo*. Eur. J. Immunol. 41: 3208-3218.
3. Verma-Gaur, J., et al. 2012. Negative feedback regulation of antigen receptors through calmodulin inhibition of E2A. J. Immunol. 188: 6175-6183.
4. Vara, D., et al. 2013. The novel NOX inhibitor 2-acetylphenothiazine impairs collagen-dependent thrombus formation in a GPVI-dependent manner. Br. J. Pharmacol. 168: 212-224.
5. Reppschläger, K., et al. 2016. TULA-2 protein phosphatase suppresses activation of Syk through the GPVI platelet receptor for collagen by dephosphorylating $Tyr(P)^{346}$, a regulatory site of Syk. J. Biol. Chem. 291: 22427-22441.
6. Park, Y.H., et al. 2018. Repositioning of anti-cancer drug candidate, AZD7762, to an anti-allergic drug suppressing IgE-mediated mast cells and allergic responses via the inhibition of Lyn and Fyn. Biochem. Pharmacol. 154: 270-277.
7. Park, Y.H., et al. 2019. An anti-cancer drug candidate CYC116 suppresses type I hypersensitive immune responses through the inhibition of Fyn kinase in mast cells. Biomol. Ther. 27: 311-317.
8. Tabata, H., et al. 2020. Syk facilitates phagosome-lysosome fusion by regulating actin-remodeling in complement-mediated phagocytosis. Sci. Rep. 10: 22086.

CONJUGATES

See **Syk (4D10): sc-1240** for Syk antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.