

Syk (SYK-01): sc-51703

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 phosphorylated on Tyr 348 and Tyr 352. Via its ability to influence CD79 activity and to control the movement of calcium 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 μ g IgG₁ 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 μ g per 100-500 μ g 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.

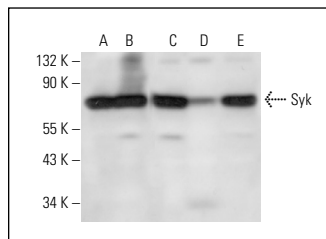
PROTOCOLS

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

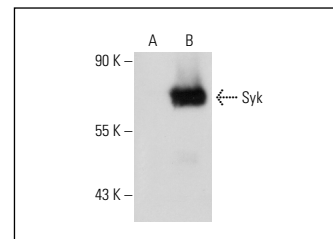
RESEARCH USE

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. Verma-Gaur, J., et al. 2012. Negative feedback regulation of antigen receptors through calmodulin inhibition of E2A. *J. Immunol.* 188: 6175-6183.
3. 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.
4. Reppschlager, 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.
5. 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.
6. 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.
7. Tabata, H., et al. 2020. Syk facilitates phagosome-lysosome fusion by regulating actin-remodeling in complement-mediated phagocytosis. *Sci. Rep.* 10: 22086.
8. Kim, S.J., et al. 2022. AT9283, 1-cyclopropyl-3-(3-(5-(morpholinomethyl)-1H-benzod[imidazole-2-yl]-1H-pyrazol-4-yl) urea, inhibits Syk to suppress mast cell-mediated allergic response. *Biomol. Ther.* 30: 520-528.



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