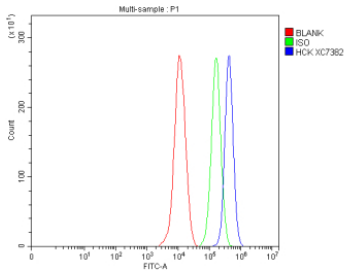
HCK Antibody / Hematopoietic cell kinase (FY13358)

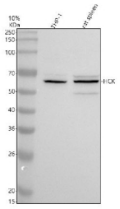
Catalog No.	Formulation	Size
FY13358	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

Availability	1-2 days
Species Reactivity	Human, Rat
Format	Lyophilized
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	P08631
Applications	Western Blot : 0.25-0.5ug/ml Flow Cytometry : 1-3ug/million cells ELISA : 0.1-0.5ug/ml
Limitations	This HCK antibody is available for research use only.



Flow Cytometry analysis of THP-1 cells using anti-HCK antibody. Overlay histogram showing THP-1 cells stained with (Blue line). The cells were fixed with 4% paraformaldehyde and blocked with 10% normal goat serum. And then incubated with rabbit anti-HCK antibody (1 ug/million cells) for 30 min at 20oC. DyLight 488 conjugated goat anti-rabbit IgG (5-10 ug/million cells) was used as secondary antibody for 30 minutes at 20oC. Isotype control antibody (Green line) was rabbit IgG (1 ug/million cells) used under the same conditions. Unlabelled sample without incubation with primary antibody and secondary antibody (Red line) was used as a blank control.



Western blot analysis of HCK using anti-HCK antibody. Electrophoresis was performed on a 10% SDS-PAGE gel at 80V (Stacking gel) / 120V (Resolving gel) for 2 hours. Lane 1: human THP-1 whole cell lysates, Lane 2: rat spleen tissue lysates. After electrophoresis, proteins were transferred to a nitrocellulose membrane at 150 mA for 50-90 minutes. Blocked the membrane with 5% non-fat milk/TBS for 1.5 hour at RT. The membrane was incubated with rabbit anti-HCK antibody at 0.5 ug/ml overnight at 4oC, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-rabbit IgG-HRP secondary antibody at a dilution of 1:5000 for 1.5 hour at RT. The signal was developed using an ECL Plus Western Blotting Substrate. A specific band was detected for HCK at approximately 60 kDa. The expected molecular weight of HCK is ~60 kDa.

Description

HCK antibody detects Hematopoietic cell kinase, a non-receptor tyrosine kinase encoded by the HCK gene on chromosome 20q11.21. HCK is a member of the Src family of kinases and is expressed predominantly in cells of the myeloid and B-lymphoid lineages, including macrophages, neutrophils, and monocytes. It plays essential roles in signal transduction pathways that regulate immune cell activation, adhesion, migration, and phagocytosis. HCK serves as a key mediator linking receptor engagement at the plasma membrane to downstream signaling cascades controlling inflammation and innate immunity.

Structurally, HCK contains an N-terminal myristoylation site for membrane attachment, followed by SH3 and SH2 domains involved in protein-protein interactions, and a C-terminal tyrosine kinase domain responsible for catalytic activity. It belongs to the Src kinase family, which includes LYN, FGR, and FYN, sharing conserved regulatory mechanisms. HCK exists in two isoforms (p59HCK and p61HCK) generated by alternative translation initiation, with p61HCK showing stronger membrane association and signaling potency.

Functionally, HCK transduces activation signals from immune receptors such as Fc gamma receptors, integrins, and toll-like receptors (TLRs). It phosphorylates downstream effectors including STAT3, PI3K, and MAPK pathway components, driving cytokine production and cell motility. HCK also interacts with cytoskeletal proteins to coordinate phagocytic cup formation and immune synapse assembly. Known substrates and partners include cortactin, paxillin, and focal adhesion kinase, supporting its role in cytoskeletal rearrangement during immune responses.

HCK participates in signaling pathways regulating inflammatory gene expression and antimicrobial defense. In macrophages, it mediates responses to lipopolysaccharide (LPS) through activation of NF-kappaB and p38 MAPK pathways. In B cells, HCK modulates B-cell receptor (BCR) signaling and survival. During development, HCK expression increases as myeloid progenitors differentiate into mature macrophages and neutrophils, highlighting its role in immune cell maturation.

Dysregulation of HCK activity is associated with immune disorders and cancer. Overexpression or constitutive activation has been observed in chronic myeloid leukemia and other hematologic malignancies, contributing to enhanced proliferation and resistance to apoptosis. Conversely, HCK deficiency impairs phagocytic and inflammatory responses. Pathway associations include JAK-STAT signaling, MAPK signaling, and Fc receptor-mediated phagocytosis. Pharmacological inhibition of HCK has shown potential in treating inflammatory and myeloproliferative diseases.

Immunohistochemical staining using HCK antibody shows cytoplasmic and membrane localization in macrophages, neutrophils, and B cells. The HCK antibody from NSJ Bioreagents is a reliable reagent for research on immune signaling, hematopoietic differentiation, and tyrosine kinase regulation.

Application Notes

Optimal dilution of the HCK antibody should be determined by the researcher.

Immunogen

E.coli-derived human HCK recombinant protein (Position: R14-R501) was used as the immunogen for the HCK antibody.

Storage

After reconstitution, the HCK antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.