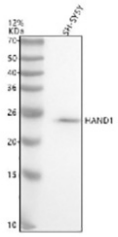
HAND1 Antibody / Heart and neural crest derivatives-expressed protein 1 (FY13044)

Catalog No.	Formulation	Size
FY13044	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
Format	Lyophilized
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	O96004
Applications	Western Blot : 0.25-0.5ug/ml
Limitations	This HAND1 antibody is available for research use only.



Western blot analysis of HAND1 using anti-HAND1 antibody. Electrophoresis was performed on a 12% SDS-PAGE gel at 80V (Stacking gel) / 120V (Resolving gel) for 2 hours. Lane 1: human SH-SY5Y whole cell 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-HAND1 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 HAND1 at approximately 24 kDa. The expected molecular weight of HAND1 is ~24 kDa.

Description

HAND1 antibody detects Heart and neural crest derivatives-expressed protein 1, a basic helix-loop-helix (bHLH) transcription factor that plays a central role in cardiac morphogenesis, placental development, and cell differentiation. The UniProt recommended name is Heart and neural crest derivatives-expressed protein 1 (HAND1). This transcription factor regulates gene expression programs that control cardiac chamber formation, trophoblast invasion, and embryonic

patterning.

Functionally, HAND1 antibody identifies a 215-amino-acid nuclear protein that binds E-box DNA motifs (CANNTG) as a heterodimer with other bHLH transcription factors such as E12 and HAND2. HAND1 activates or represses transcription depending on partner interactions and chromatin context. During embryogenesis, HAND1 is expressed in the developing heart, extraembryonic tissues, and craniofacial mesenchyme, where it directs differentiation of myocardial, trophoblast, and smooth muscle lineages.

The HAND1 gene is located on chromosome 5q33.2 and is transcriptionally regulated by cardiac transcription factors including NKX2-5, GATA4, and MEF2C. HAND1 functions in a dosage-sensitive manner, as either loss or overexpression disrupts normal cardiac looping and ventricular formation. It acts downstream of BMP and WNT signaling pathways that orchestrate early mesoderm and cardiac progenitor specification.

In the heart, HAND1 contributes to left ventricular development and patterning of the outflow tract. It regulates expression of structural and contractile genes required for cardiomyocyte differentiation. In the placenta, HAND1 promotes trophoblast giant cell differentiation and invasion, critical for maternal-fetal exchange. Beyond development, HAND1 has been implicated in cancer biology, where aberrant expression can influence cell proliferation, migration, and angiogenesis through transcriptional reprogramming of developmental pathways.

HAND1 antibody is widely used in developmental biology, cardiology, and transcriptional regulation research. It is suitable for immunohistochemistry, immunofluorescence, and western blotting to detect HAND1 expression in embryonic and differentiated tissues. This antibody supports studies of cardiac gene regulation, lineage specification, and embryonic morphogenesis. It also aids in placental biology research and models of congenital heart defects.

Structurally, HAND1 contains a basic DNA-binding region and a helix-loop-helix dimerization motif that enable sequence-specific DNA binding and partner selection. Post-translational modifications such as phosphorylation influence HAND1 dimerization and transcriptional output. NSJ Bioreagents provides HAND1 antibody reagents validated for use in cardiac development, trophoblast differentiation, and transcriptional network research.

Application Notes

Optimal dilution of the HAND1 antibody should be determined by the researcher.

Immunogen

A synthetic peptide corresponding to a sequence at the C-terminus of human HAND1 was used as the immunogen for the HAND1 antibody.

Storage

After reconstitution, the HAND1 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.