SANTA CRUZ BIOTECHNOLOGY, INC.

ICF45 (Q-13): sc-162954

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The transfer RNA (tRNA) for histidine is unique among eukaryotic tRNAs because it requires the addition of a guanine nucleotide by tRNA(His) guanylyltransferase. The addition of guanine is necessary for aminoacylation by the histidine tRNA synthetase. ICF45 (interphase cytoplasmic foci protein 45), also known as THG1L or probable tRNA-histidine guanylyltransferase, is a highly conserved novel 298 amino acid protein belonging to the tRNA(His) gyanylytransferase family. Localized to the cytoplasm, ICF45 is also found near the nuclear membrane and is expressed in many tissues, including liver and lung. Upon DNA damage, ICF45 is phosphorylated, most likely by ATM or ATR. ICF45 is expressed in a cell cycle-dependent manner and may be involved in cell cycle progression and cell proliferation. ICF45 is encoded by a gene located on human chromosome 5q33.3 and mouse chromosome 11 B1.1.

REFERENCES

1. Fresco, L.D., et al. 1994. Active site of the mRNA-capping enzyme guanylyltransferase from *Saccharomyces cerevisiae*: similarity to the nucleotidyl attachment motif of DNA and RNA ligases. Proc. Natl. Acad. Sci. USA 91: 6624-6628.
2. Guo, D., et al. 2004. Identification and characterization of a novel cytoplasm protein ICF45 that is involved in cell cycle regulation. J. Biol. Chem. 279: 53498-53505.
3. Jackman, J.E., et al. 2006. tRNAHis guanylyltransferase adds G-1 to the 5' end of tRNAHis by recognition of the anticodon, one of several features unexpectedly shared with tRNA synthetases. RNA 12: 1007-1014.
4. Choudhary, C., et al. 2009. Lysine acetylation targets protein complexes and co-regulates major cellular functions. Science 325: 834-840.
5. Banik, S.D., et al. 2010. Aminoacylation reaction in the histidyl-tRNA synthetase: fidelity mechanism of the activation step. J. Phys. Chem. B 114: 2301-2311.
6. Hyde, S.J., et al. 2010. tRNA(His) guanylyltransferase (THG1), a unique 3'-5' nucleotidyl transferase, shares unexpected structural homology with canonical 5'-3' DNA polymerases. Proc. Natl. Acad. Sci. USA 107: 20305-20310.

CHROMOSOMAL LOCATION

Genetic locus: THG1L (human) mapping to 5q33.3; Thg1l (mouse) mapping to 11 B1.1.

SOURCE

ICF45 (Q-13) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of ICF45 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-162954 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

ICF45 (Q-13) is recommended for detection of ICF45 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

ICF45 (Q-13) is also recommended for detection of ICF45 in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for ICF45 siRNA (h): sc-91730, ICF45 siRNA (m): sc-146135, ICF45 shRNA Plasmid (h): sc-91730-SH, ICF45 shRNA Plasmid (m): sc-146135-SH, ICF45 shRNA (h) Lentiviral Particles: sc-91730-V and ICF45 shRNA (m) Lentiviral Particles: sc-146135-V.

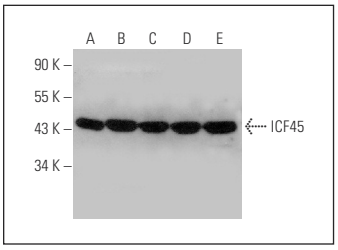
Molecular Weight of ICF45: 45 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, K-562 whole cell lysate: sc-2203 or Hep G2 cell lysate: sc-2227.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



ICF45 (Q-13): sc-162954. Western blot analysis of ICF45 expression in HeLa (**A**), Jurkat (**B**), K-562 (**C**), Hep G2 (**D**), NIH/3T3 (**E**) whole cell lysates.

STORAGE

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

RESEARCH USE

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