

HRI (D-12): sc-365239

BACKGROUND

HRI (heme-regulated inhibitor kinase) phosphorylates the α subunit of eIF2 α kinase, which plays an important role in translational regulation during heme deficiency. HRI is activated in response to a number of environmental conditions, including heme deficiency, heat shock, and oxidative stress. Autophosphorylation is essential for the activation of HRI, which causes an arrest of initiation of protein synthesis. Both HSP 90 and HSC 70 are necessary for all stress-induced HRI activation. Furthermore, HSC 70 is required for the folding and transformation of HRI into an active kinase and is subsequently required to negatively attenuate the activation of transformed HRI. Both the N-terminus and the kinase insertion domain, which are unique to HRI, are involved in the heme binding and the heme regulation of HRI. The human HRI gene maps to chromosome 7p22.1 and encodes a 630 amino acid protein expressed mainly in erythroid cells.

CHROMOSOMAL LOCATION

Genetic locus: ELF2AK1 (human) mapping to 7p22.1; Eif2ak1 (mouse) mapping to 5 G2.

SOURCE

HRI (D-12) is a mouse monoclonal antibody raised against amino acids 27-165 mapping near the N-terminus of HRI of human origin.

PRODUCT

Each vial contains 200 μ g IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

HRI (D-12) is available conjugated to agarose (sc-365239 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-365239 HRP), 200 μ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-365239 PE), fluorescein (sc-365239 FITC), Alexa Fluor® 488 (sc-365239 AF488), Alexa Fluor® 546 (sc-365239 AF546), Alexa Fluor® 594 (sc-365239 AF594) or Alexa Fluor® 647 (sc-365239 AF647), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-365239 AF680) or Alexa Fluor® 790 (sc-365239 AF790), 200 μ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

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APPLICATIONS

HRI (D-12) is recommended for detection of HRI of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], 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).

Suitable for use as control antibody for HRI siRNA (h): sc-39052, HRI siRNA (m): sc-39053, HRI shRNA Plasmid (h): sc-39052-SH, HRI shRNA Plasmid (m): sc-39053-SH, HRI shRNA (h) Lentiviral Particles: sc-39052-V and HRI shRNA (m) Lentiviral Particles: sc-39053-V.

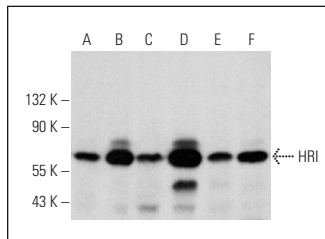
Molecular Weight of HRI: 71 kDa.

Positive Controls: CCRF-CEM cell lysate: sc-2225, HeLa whole cell lysate: sc-2200 or RAW 264.7 whole cell lysate: sc-2211.

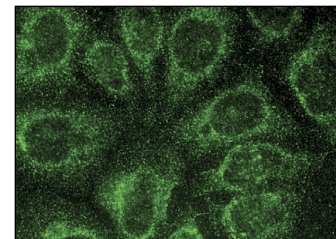
STORAGE

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

DATA



HRI (D-12): sc-365239. Western blot analysis of HRI expression in CCRF-CEM (A), HeLa (B), RAW 264.7 (C), WEHI-231 (D), KNRK (E) and C6 (F) whole cell lysates.



HRI (D-12): sc-365239. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Michel, S., et al. 2015. Inhibition of mitochondrial genome expression triggers the activation of CHOP-10 by a cell signaling dependent on the integrated stress response but not the mitochondrial unfolded protein response. *Mitochondrion* 21: 58-68.
2. Peters, T.L., et al. 2018. Target-based screening against eIF4A1 reveals the marine natural product elatol as a novel inhibitor of translation initiation with *in vivo* antitumor activity. *Clin. Cancer Res.* 24: 4256-4270.
3. Zarei, M., et al. 2019. Oral administration of a new HRI activator as a new strategy to improve high-fat-diet-induced glucose intolerance, hepatic steatosis and hypertriglyceridemia through FGF21. *Br. J. Pharmacol.* 176: 2292-2305.
4. Yoon, C.J., et al. 2020. Epstein-Barr virus-encoded miR-BART5-5p upregulates PD-L1 through PIAS3/pSTAT3 modulation, worsening clinical outcomes of PD-L1-positive gastric carcinomas. *Gastric Cancer* 23: 780-795.
5. Chang, L., et al. 2022. Attenuation of activated eIF2 α signaling by ISRIB treatment after spinal cord injury improves locomotor function. *J. Mol. Neurosci.* 72: 585-597.
6. Bouvier, M.L., et al. 2022. Sex-dependent effects of long-term clozapine or haloperidol medication on red blood cells and liver iron metabolism in Sprague Dawley rats as a model of metabolic syndrome. *BMC Pharmacol. Toxicol.* 23: 8.
7. Kalkavan, H., et al. 2022. Sublethal cytochrome c release generates drug-tolerant persister cells. *Cell* 185: 3356-3374.e22.
8. Cordova, R.A., et al. 2022. GCN2 eIF2 kinase promotes prostate cancer by maintaining amino acid homeostasis. *Elife* 11: e81083.
9. Sain Basu, D., et al. 2022. FMRP protects the lung from xenobiotic stress by facilitating the integrated stress response. *J. Cell Sci.* 135: jcs258652.

RESEARCH USE

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