Detroit R&D, Inc.

Metro Center for High Technology Bldg.
2727 Second Ave. Suite 4113
Detroit, MI 48201
Phone: (313) 961-1606; Fax: (313)963-7130
Email: info@DetroitRandD.com
Web: www.DetroitRandD.com

12-HETE Hypertension ELISA kit

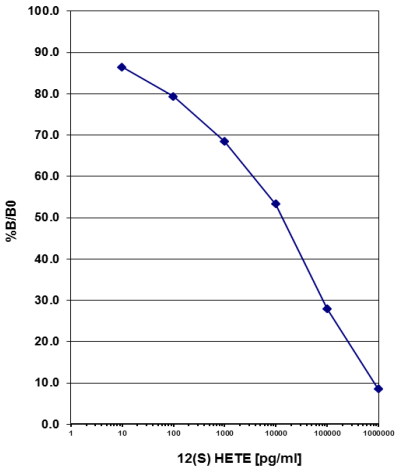
Cat # 12H 1: ELISA kit for measuring 12-HETE in biological samples

This competitive ELISA kit is for determination of 12-HETE (12-Hydroxyeicosatetraenoic acid) levels in biological samples. The specificity of the 12-HETE ELISA was investigated using authentic 12-HETE and fatty acids which, based on their structure, might be anticipated to compete with 12-HETE for binding to antibodies against 12-HETE. Anti-12-HETE only slightly cross-reacted with 15-HETE and 13-HODE.

HETEs are byproducts generated by the metabolism of arachidonic acid by lipoxygenases. 12(S)-HETE is the stereospecific hydroxyl product produced from the reduction of 12(S)-hydroperoxytetraenoic eicosatetraenoic acid [12(S)-HpETE], which is itself is a 12-lipoxygenase metabolite of arachidonic acid. It has recently been reported that platelet 12(S)-HETE production is enhanced in the spontaneously hypertensive rat[1]. 12(S)-HETE levels and 12-lipoxygenase (12-LO) protein are increased in patients with essential hypertension[2], also suggesting a role for this metabolite in human hypertension. These metabolites exhibit a variety of biological activities such as mediation of angiotensin II–induced intracellular calcium transients in cultured rat vascular smooth muscle cells[3] and as a second messenger in angiotensin-II induced aldosterone production[4]. 12(S)-HETE also acts as an aggregator of polymorphonuclear leukocytes[5] and is a highly selective ligand used to label mu opioid receptors[6] and serves as a biomarker of Churg-Strauss syndrome[7].

Each kit can be used for triplicate analyses of up to 24 samples contains using a 96 well plate format, and contains a vial of 12-HETE standard, a vial of 12-HETE-conjugated horseradish peroxidase (HRP), and buffers for sample and HRP dilutions, and plate washing.

Related Products



Hypertension/Stroke ELISA kits:

-14,15-DHET Hypertension/Stroke ELISA
-11,12-DHET Hypertension/Stroke ELISA
-20-HETE Hypertension/Stroke ELISA

Cancer ELISA Kit:

- NAG-1 (MIC-1, GDF15) Cancer ELISA
- 12-HETE Cancer ELISA

Oxidative Stress ELISA Kit:

-8-isoprostane ELISA

Hypertension Antibodies:

-Rat: CYP2C23, CYP2C11, CYP2C, CYP4A, sEH
-Human: CYP1B1, CYP2C8/9

Specificity of anti-20-HETE ELISA

Eicosanoids	% Binding of control
12-HETE	100.00
15-HETE	3.8
13-HODE	2.6

References

1. Stern N, Kisch ES, Knoll E. Platelet lipoxygenase in spontaneously hypertensive rats. Hypertension. 1996;27:1149–1152.

2. González-Núñez, Daniel, Joan Claria, Francisca Rivera, Esteban Poch. Increased levels of 12(S)-HETE in patients with essential hypertension. Hypertension 2001; 37: 334-338

3. Natarajan, Rama, Noe Gonzales, Linda Lanting, Jerry Nadler. Role of the Lipoxygenase pathway in angiotensin II-induced vascular smooth muscle cell hypertrophy. Hypertension 1994; 23: I142

4. J L Nadler, R Natarajan and N Stern. Specific action of the lipoxygenase pathway in mediating angiotensin II-induced aldosterone synthesis in isolated adrenal glomerulosa cells. J Clin Invest. 1987;80(6):1763–1769.

5. O'Flaherty JT, Thomas MJ, Lees CJ, McCall CE Neutrophil-aggregating activity of monohydroxyeicosatetraenoic acids. Am J Pathol. 1981 Jul;104(1):55-62.

6. Christie, M.J., C.W. Vaughan and S.L. Ingram. Opioids, NSAIDs, and 5-lipoxygenase inhibitors act synergistically in brain via arachidonic acid metabolism. Inflamm. Res. 1999, 48: 1-4.

7. Szczeklik W, Sanak M, Mastalerz L, Sokołowska BM, Gielicz A, Soja J, Kumik J, Musiał J, Szczeklik A. 12-hydroxy-eicosatetraenoic acid (12-HETE): a biomarker of Churg-Strauss syndrome. Clin Exp Allergy. 2012 Apr;42(4):513-22