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Hypertension/Stroke ELISA (20-HETE) kit

Cat # 20H 1: ELISA kit for measuring 20-HETE in biological samples

This competitive ELISA kit is for determination of 20-HETE (also known as 20-OH-AA) levels in biological samples. The specificity of the 20-HETE ELISA was investigated using authentic 20-HETE and a panel of fatty acids which, based on their structure, might be anticipated to compete with 20-HETE for binding to antibodies for 20-HETE. Anti-20-HETE did not cross-react with 14,15- and 11,12-DHETs or PGE_2 and showed almost no cross-reactivity even with structurally extremely similar arachidonic acid (AA), linoleic acid and linolenic acid (see plot below).

Hypertension was caused by AA ω-hydroxylase (20-HETE synthesis) activity of cytochrome P450 (CYP) 4A, 4F[4], 1B1[7,8] or kidney androgen-regulated protein (KAP)[2,16]. CYP4F2 genetic variants, which increased urinary 20-HETE secretion, were correlated with the risk for hypertension in a Chinese population[1,13]. Urinary 20-HETE levels of two-kidney, one-clip (2K1C) rats were higher than control rats[12]. Co-inhibition of 20-HETE and DHET formation abolished angiotensin II hypertension in mice[11], suggesting new generation hypertension drug development opportunity. 20-HETE was a clinical marker of post-transplant allograft function[3] and increased after cerebral ischemia, which induced brain injury due to its vasoconstrictive activity[18]. Recent studies reported that increased 20-HETE synthesis reduced cerebral blood flow[20] and vasodilatory effect of eNOS is a result of suppressed 20-HETE synthesis in brain slices[21]. The interplay of circadian clock, 20-HETE pathway and renal sodium handling was studied in mice[17]. 20-HETE formation and CYP23 expression were all decreased by N-palmitoylethanolamide treatment in SHR rats[25] Thus, 20-HETE is a new biomarker and therapeutic target for hypertension[19], stroke and even cancer[24].A sharp decrease in 20-HETE levels in blood, urine and tissue is a clinical marker of hypotension and septic shock. High glucose fed rat proximal tubular cells elevated CYP4A expression and 20-HETE formation and activated the mTOR/p7056Kinase pathway which plays a major role in diabetic nephropathy.[26]

Each kit for triplicate analyses of up to 24 samples contains a 96-well plate, 20-HETE standard, 20-HETE-conjugated horseradish peroxidase (HRP), and buffers for sample and HRP dilutions, and plate washing.

Related Products

Hypertension/Stroke ELISA kits:

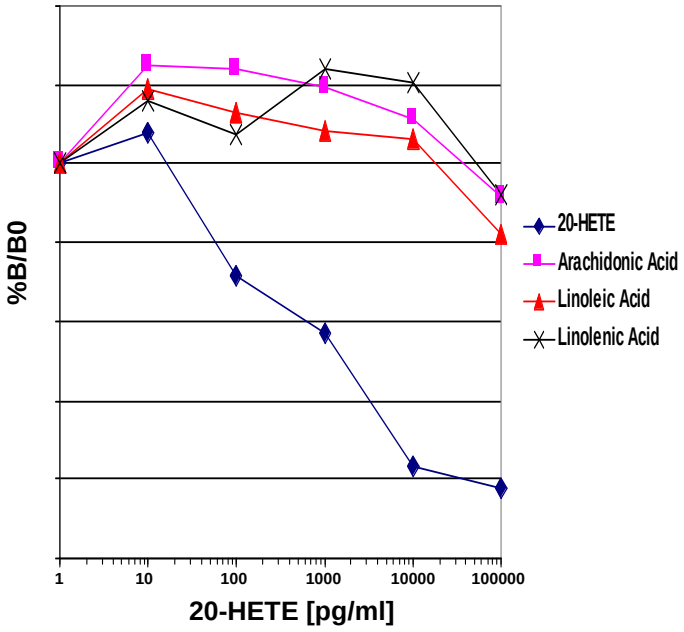
- 20-HETE B-glucuronide ELISA
- 14,15-DHET Hypertension/Stroke ELISA
- 11,12-DHET Hypertension/Stroke ELISA
- 12(S)-HETE Hypertension/Stroke ELISA
- 15(S)-HETE Hypertension/Stroke ELISA

Oxidative Stress ELISA Kit:

- 8-isoprostane ELISA

Hypertension/Stroke Antibodies:

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



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Specificity of anti-20-HETE ELISA

Eicosanoids	% Binding of control
20-HETE	100.00
Arachidonic Acid	<0.02
Linoleic Acid	<0.02
Linolenic Acid	<0.02
15-HETE	<0.02
14,15-DHET	<0.02
11,12-DHET	<0.02
PGE_2	<0.02