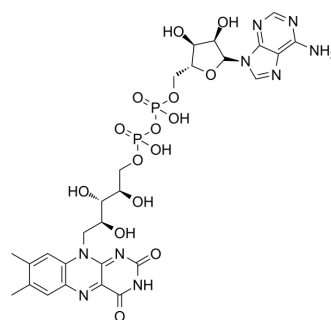


Flavin adenine dinucleotide

Cat. No.:	HY-B1654
CAS No.:	146-14-5
Molecular Formula:	C ₂₇ H ₃₃ N ₉ O ₁₅ P ₂
Molecular Weight:	785.55
Target:	Endogenous Metabolite
Pathway:	Metabolic Enzyme/Protease
Storage:	4°C, protect from light * In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)



SOLVENT & SOLUBILITY

In Vitro

H₂O : 125 mg/mL (159.12 mM; Need ultrasonic)

Solvent	Mass	Concentration		
		1 mg	5 mg	10 mg
Preparing Stock Solutions	1 mM	1.2730 mL	6.3650 mL	12.7299 mL
	5 mM	0.2546 mL	1.2730 mL	2.5460 mL
	10 mM	0.1273 mL	0.6365 mL	1.2730 mL

Please refer to the solubility information to select the appropriate solvent.

BIOLOGICAL ACTIVITY

Description

Flavin adenine dinucleotide (FAD) is a redox cofactor, more specifically a prosthetic group of a protein, involved in several important enzymatic reactions in metabolism.

IC₅₀ & Target

Human Endogenous Metabolite

In Vitro

Poly(Flavin adenine dinucleotide, FAD) characterized by an additional polymer-type redox reaction is a highly effective electrocatalyst for NADH oxidation: operating at the lowest potentials reported for NADH transducers (0.00 V, pH 7.4), poly(FAD) is characterized by the electrochemical rate constant of $1.8 \pm 0.6 \times 10^{-3}$ cm/s, which is at the level of the NADH mass-transfer constant. Poly(FAD)-modified electrodes are characterized by the dramatically improved stability and, is the most advantageous NADH transducers for analytical chemistry^[2].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

In Vivo

Flavin adenine dinucleotide (2 mg/kg, i.v.) significantly cancels chlorpromazine (CPZ)-induced decrease in ventricular fibrillation threshold (VFT). Flavin adenine dinucleotide cancels the effect of CPZ on canine heart mitochondria. After injection of Flavin adenine dinucleotide, the dogs show a transient hypotension within 10 min, then their blood pressures recover to the initial level. Flavin adenine dinucleotide also prevents mitochondrial dysfunction induced by chlorpromazine [1].

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PROTOCOL

Animal Administration ^[1]

Dogs^[1]

The dogs are divided into 3 groups and they are received the following treatments. Each group consists of 6 dogs. Dogs in group I as control, are given 2 mL/kg of physiological saline by intravenous injection. Ten min after the start of the first injection, another dose of saline, 1 mL/kg, is injected intravenously. Dogs in group II are given i.v. 2 mL saline/kg. Ten min afterwards, 1 mg chlorpromazine(CPZ)/kg is injected. Dogs in group III are given i.v. Flavin Adenin Dinucleotide, 2 mg/kg. Ten min later, they are given CPZ, 1 mg/kg. All solutions is administrated in 1 min or 2. Blood samples are taken before and 10, 20, 30, and 40 min after the intravenous injection of saline (groups I and II) or Flavin Adenin Dinucleotide (group III). Serum K⁺ and blood pH are also measured. Heart rate, blood pressure and ventricular fibrillation threshold (VFT) of each dog are recorded at the same intervals^[1].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[1]. Sugiyama S, et al. Protection of chlorpromazine-induced arrhythmia by flavin-adenine-dinucleotide in canine heart. Jpn Heart J. 1979 Sep;20(5):657-65.

[2]. Karyakin AA, et al. Electropolymerized flavin adenine dinucleotide as an advanced NADH transducer. Anal Chem. 2004 Apr 1;76(7):2004-9.

Caution: Product has not been fully validated for medical applications. For research use only.

Tel: 609-228-6898

Fax: 609-228-5909

E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA