

Human, Mouse Butyrylcholinesterase Fluorescent Detection Kit

Multi-Species Butyrylcholinesterase Fluorescent Detection Kit

CATALOG #
AAA266531

REACTIVITY
Human, Mouse

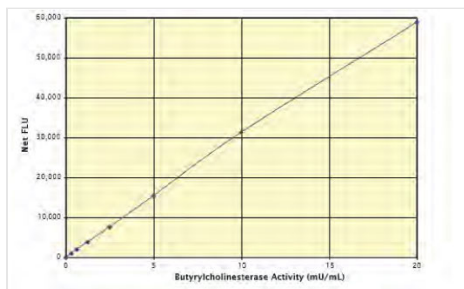
PRODUCT SYNONYMS

Butyrylcholinesterase Fluorescent; Multi-Species Butyrylcholinesterase Fluorescent Detection Kit; Butyrylcholinesterase Fluorescent detection kit

PRODUCT SPECIFICATIONS

Reactivity	Human, Mouse
Samples	a variety of samples
Sensitivity	0.018mU/mL
Detection Target	Butyrylcholinesterase
Intra-assay Precision	Three human serum samples were diluted with Assay Buffer and run in replicates of 20 in an assay.
Inter-assay Precision	Three human serum samples were diluted with Assay Buffer and run in duplicates in sixteen assays run over multiple days by four operators.
Preparation and Storage	Store at 2-8 degree C

IMAGES



Standard Curve (Sample)

ADDITIONAL INFORMATION

Related Product Information for Butyrylcholinesterase Fluorescent detection kit

Background: Butyrylcholinesterase (BChE) belongs to the same structural class of proteins as acetylcholinesterase (AChE). The 440kDa tetrameric glycoprotein is predominantly found in blood, kidneys, intestine, liver, lung, heart and the central nervous system. Many species, such as human, horse and mice exhibit high BChE activity in plasma, whereas rats have higher acetylcholinesterase activity in plasma¹. BChE preferentially acts on butyrylcholine, but also hydrolyzes acetylcholine. BChE serves a few known functions within the body. As a detoxification enzyme, it hydrolyzes ester- containing drugs and scavenges cholinesterase inhibitors, such as succinylcholine, before they have a chance to reach synaptic targets. By doing this, the enzyme minimizes the neuromuscular effect these agents have. A deficiency of BChE can result in delayed metabolism of various drugs, such as cocaine, and treatment with doses of BChE can help in overcoming the physiological reaction to them². As an activator enzyme, BChE converts administered prodrugs into functional therapeutics. Bambuterol is a prodrug with anti-asthmatic properties after being converted by BChE. BChE is the only enzyme in human serum that acts on heroin, and its end product, after crossing the blood-brain barrier, is hydrolyzed to morphine by enzymes in the brain. Alzheimer's disease involves the degeneration of cholinergic neurons and loss of cholinergic transmission. The reduction in choline acetyltransferase leads to a decrease in acetylcholine and acetylcholinesterase activity, which appears to cause an increase in BChE activity³. Potent cholinesterase inhibitor therapeutics protect the limited acetylcholine levels, acting on both AChE and BChE. Selective BChE inhibitors prevent the formation of new beta-amyloid plaques, which are created by BChE cleaving amyloid precursor protein to beta-amyloid protein⁴. BChE-positive neurons project to the frontal cortex portion of the brain. BChE may have roles in attention, executive function, emotional memory and behaviour. As dementia advances, BChE activity has been shown to increase, while AChE activity decreases, leaving the potential for BChE activity to be used as a biomarker for progression⁵ or target for future therapies.

Principle of the Assay: Multi-Species Butyrylcholinesterase Fluorescent Detection Kit is designed to quantitatively measure butyrylcholinesterase (BChE) activity in a variety of samples. Please read the complete kit insert before performing this assay. A human BChE standard is provided to generate a standard curve for the assay and all samples should be read off the standard curve. The kit utilizes a proprietary non-fluorescent molecule, ThioStar, that covalently binds to the thiol product of the reaction between the BChE Substrate and BChE in the standards or samples, yielding a fluorescent product read at 510 nm in a fluorescent plate reader with excitation at 390 nm. The kit is suitable for measuring BChE activity in appropriately diluted serum or plasma from a number of species. It will also measure BChE in extracted tissue samples, CSF and cell lysates. Because the readout of BChE activity is purely chemical, there are few interferants that will affect the readings obtained.

For Research Use Only. Not for use in diagnostic or therapeutic procedures. Small volumes of product may become entrapped in the seal of the vial during shipment and storage; if necessary, briefly centrifuge the vial on a tabletop centrifuge to dislodge any liquid in the cap.

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Online datasheet: <https://stage.aaabiotech.com/human-mouse-detection-kits/butyrylcholinesterase-fluorescent/266531>