

BTNX Rapid Response™ Medetomidine Test Strip

1000 ng/mL

Introduction

Medetomidine, originally developed and introduced to the veterinary market in the late 1980s, is primarily used as a sedative, analgesic, and pre-anesthetic medication for animals. As an alpha-2 adrenergic agonist, it effectively induces sedation, muscle relaxation, and pain relief in various animal species, making it a valuable tool in veterinary procedures. Despite its intended use, the drug has occasionally found its way into illicit markets.

Medetomidine was initially developed for veterinary use, and Dexmedetomidine is the active enantiomer of medetomidine, making it pharmacologically more potent and selective in its action. This distinction translates to significant differences in their applications and dosing. When dexmedetomidine misused recreationally, it can produce profound sedation, a sense of relaxation, and reduced anxiety, which appeal to individuals seeking intense sedative effects. However, its potent pharmacological properties pose significant health risks, including severe bradycardia (slowed heart rate), hypotension (low blood pressure), and respiratory depression. These effects are highly unpredictable and can be life-threatening, especially when combined with other central nervous system depressants like alcohol or opioids.

To address concerns about the illicit use of medetomidine, the Rapid Response™ Medetomidine Test Strip (MED-18S2-100) from BTNX has been developed for efficient screening of Medetomidine in liquid or powder samples by using dexmedetomidine as the calibrator. This test utilizes a selective antibody to detect the presence of dexmedetomidine. Like other harm reduction test strips, it operates on a competitive binding principle: if the target is present in the sample at a concentration exceeding the cut-off, a single-colored line will appear in the test region.

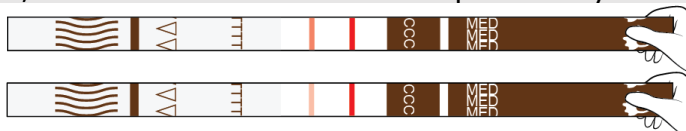
Positive - Medetomidine Detected

Only one colored line appears in the control region (C). No apparent colored line appears in the test region (T).



Negative – Medetomidine Could Not be Detected

Two colored lines appear on the membrane. One line appears in the control region (C) and another line appears in the test region (T). Even faint lines are considered negative. All negative results are presumptive. Confirmation should be performed using GC-MS or LC-MS analysis. There is still a risk of overdose, even if dexmedetomidine is not present in your drugs.





Test Performance

Analytical Sensitivity

The following compounds were individually spiked into water to evaluate the detection capability of the Rapid Response™ Medetomidine Test Strip. The cut-off listed in the table represents the concentration at which a substance will begin to show a mix of positive and negative results.

Compounds	Cut off
Dexmedetomidine	1000 ng/mL
Medetomidine	1500 ng/mL

Analytical Specificity

Important Note: The test cross reacts with Detomidine at 20 µg/mL.

Detomidine and medetomidine are both α2-adrenergic agonists commonly used in veterinary medicine. They are chemically related and share similar pharmacological properties.

The following compounds were spiked into water, respectively, to examine possible cross-reactivity. No false positive was observed at the concentration listed below.

Compounds	Concentration
Quinine	5 mg/mL
Levamisole	2 mg/mL
Caffeine	5 mg/mL
Lidocaine	5 mg/mL
Diphenhydramine	5 mg/mL
Xylazine	5 mg/mL
Codeine	5 mg/mL
Heroin (Diamorphine Hydrochloride)	5 mg/mL
Methamphetamine	5 mg/mL
MDMA	2 mg/mL
Acetaminophen	5 mg/mL
Morphine	5 mg/mL
Tramadol	5 mg/mL
Ketamine	5 mg/mL
Cocaine	5 mg/mL
Oxycodone	5 mg/mL
Methadone	5 mg/mL
Meperidine	5 mg/mL