

## Overview

### Useful For

Screening for drug abuse or use of buprenorphine

### Method Name

Immunoassay

### NY State Available

Yes

## Specimen

### Specimen Type

Urine

### Specimen Required

**Supplies:** Aliquot Tube, 5 mL (T465)

**Collection Container/Tube:** Plastic urine container

**Submission Container/Tube:** Aliquot Tube, 5 mL

**Specimen Volume:** 5 mL

### Collection Instructions:

1. Collect a random urine specimen.
2. Submit 5 mL in 1 plastic bottle.
3. No preservative.
4. If submitting for multiple urine drug confirmation tests on 1 order, submit 5 mL per test ordered in a single plastic, 60 mL urine container (T313).

**Additional Information:** If urine creatinine is required or adulteration of the sample is suspected, the following test should be requested, ADULT / Adulterants Survey, Urine.

### Forms

If not ordering electronically, complete, print, and send a [Therapeutics Test Request](#) (T831) with the specimen.

### Specimen Minimum Volume

2.5 mL

### Reject Due To

All specimens will be evaluated at Mayo Clinic Laboratories for test suitability.

## Specimen Stability Information

| Specimen Type | Temperature              | Time     | Special Container |
|---------------|--------------------------|----------|-------------------|
| Urine         | Refrigerated (preferred) | 14 days  |                   |
|               | Frozen                   | 14 days  |                   |
|               | Ambient                  | 72 hours |                   |

## Clinical and Interpretive

### Clinical Information

Clinically, buprenorphine is utilized as a substitution therapy for opioid dependence and as an analgesic. Buprenorphine is a partial agonist of the mu-opioid receptor. These mu binding sites are discretely distributed in the human brain, spinal cord, and other tissue. The clinical effects of mu receptor agonists are sedation, euphoria, respiratory depression, and analgesia. As a partial mu receptor agonist, buprenorphine's clinical effects are decreased, giving buprenorphine a wider safety margin.(1) Buprenorphine has a prolonged duration of activity. The combination of decreased clinical effects and prolonged activity gives buprenorphine the added advantage of a delayed and decreased withdrawal syndrome, compared to other opioids. Compared to morphine, buprenorphine is 25 to 40 times more potent.(1) As with any opioid, abuse is always a concern. To reduce illicit use of buprenorphine, it is available mixed with naloxone in a ratio of 4:1. When the combination is taken as prescribed, only small amounts of naloxone will be absorbed. However, if the combination is transformed into the injectable form, naloxone then acts as an opioid receptor antagonist.

Buprenorphine is metabolized through N-dealkylation to norbuprenorphine through cytochrome P450 3A4. Both parent and metabolite then undergo glucuronidation. Norbuprenorphine is an active metabolite possessing one fifth of the potency of its parent. The glucuronide metabolites are inactive.(1)

This procedure uses immunoassay reagents that are designed to produce a negative result when no drugs are present in a natural (ie, unadulterated) specimen of urine; the assay is designed to have a high true-negative rate. Like all immunoassays, it can have a false-positive due to cross-reactivity with natural chemicals and drugs other than those they were designed to detect. The immunoassay also can have a false-negative due to the antibody's ability to cross-react with different drugs in the target class.

### Reference Values

Negative

Screening cutoff concentration:

Buprenorphine: 5 ng/mL

### Interpretation

This assay only provides a preliminary analytical test result. A more specific alternative method (ie, liquid chromatography-tandem mass spectrometry: LC-MS/MS) must be used to obtain a confirmed analytical result.

### Cautions

Care should be taken when interpreting results since there are many factors (eg, fluid intake and other biologic factors) that may influence a urine test result. It is possible that substances other than those investigated in the specificity study may interfere with the test and cause false-positive or false-negative results.

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**Clinical Reference**

1. Elkader A, Spuroule B: Buprenorphine clinical pharmacokinetics in the treatment of opioid dependence. Clin Pharmacokinet 2005;44(7):661-680

**Performance****Method Description**

This assay is a homogeneous enzyme immunoassay technique. The assay will be performed semi- quantitatively. The assay is based on competition between free drug in the urine sample, and a drug labeled with the enzyme G6PDH for a fixed amount of specific antibody binding sites. Active enzyme converts NAD to NADH, which results in an absorbance change that can be measured spectrophotometrically at 340nm. Similar testing is being performed on the Olympus AU680 analyzer and this test would be an addition to the current testing.(Package insert: Buprenorphine Enzyme Immunoassay. Immunalysis Corporation. Pomona, CA)

**PDF Report**

No

**Day(s) and Time(s) Test Performed**

Monday through Saturday

**Analytic Time**

Same day/1 day

**Maximum Laboratory Time**

2 days

**Specimen Retention Time**

14 days

**Performing Laboratory Location**

Rochester

**Fees and Codes****Fees**

- Authorized users can sign in to [Test Prices](#) for detailed fee information.
- Clients without access to Test Prices can contact [Customer Service](#) 24 hours a day, seven days a week.
- Prospective clients should contact their Regional Manager. For assistance, contact [Customer Service](#).

**Test Classification**

This test was developed and its performance characteristics determined by Mayo Clinic in a manner consistent with CLIA requirements. This test has not been cleared or approved by the U.S. Food and Drug Administration.

**CPT Code Information**

80307

**LOINC® Information**



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| Test ID | Test Order Name         | Order LOINC Value |
|---------|-------------------------|-------------------|
| BUPS    | Buprenorphine Screen, U | 3415-7            |

| Result ID | Test Result Name        | Result LOINC Value |
|-----------|-------------------------|--------------------|
| 63119     | Buprenorphine Screen, U | 3415-7             |