

URINE OPIATE

The EMIT II Plus Opiate Assay detects morphine and morphine-3-glucuronide (the major metabolites of heroin) and codeine in human urine.

Non Interfering Substances

Each of the following compounds when added to urine containing morphine at +/-25% concentration of the cutoff do not yield a false response relative to the 300 and 2000 ng/mL cutoff levels:

Compound	Concentration
Acetone	1.0 g/dL
Ascorbic Acid	1.5 g/dL
Bilirubin	0.25 mg/dL
Creatinine	0.5 g/dL
Ethanol	1.0 g/dL
Gamma Globulin	0.5 g/dL
Glucose	2.0 g/dL
Hemoglobin	115 mg/dL
Human Serum Albumin	0.5 g/dL
Oxalic Acid	0.1 g/dL
Riboflavin	7.5 mg/dL
Sodium Chloride	6.0 g/dL
Urea	6.0 g/dL

Specificity

The table below gives the compounds this assay detects and the levels at which the compounds have been found to give a response approximately equivalent to that of the cutoff calibrator. Each concentration represents the reactivity level for the stated compound when it is added to a negative urine specimen. If a specimen contains more than one compound detected by the assay, lower concentrations than those listed may combine to produce a rate approximately equivalent to or greater than that of the cutoff calibrator:

Compound	Conc. At 300 ng/mL cutoff	Conc. At 2000 ng/mL cutoff
Codeine	102-306 ng/mL	660–1980 ng/mL
Dihydrocodeine	291 ng/mL	1872 ng/mL
Hydrocodone	247 ng/mL	1545 ng/mL
Hydromorphone	498 ng/mL	5349 ng/mL
Levallorphan ⁹	>5000 ng/mL*	>120,000 ng/mL*
Levorphanol	480 ng/mL	7680 ng/mL
Meperidine	>15000 ng/mL [∞]	>400000 ng/mL
6-Acetylmorphine	435 ng/mL	2100 ng/mL
Morphine-3-Glucuronide	626 ng/mL	6167 ng/mL
Nalorphine	2130 ng/mL*	67200 ng/mL*
Naloxone	360000 ng/mL	>3500000 ng/mL
Oxycodone	3340 ng/mL	48000 ng/mL

Oxymorphone

9300

>100000

*Therapeutic or toxic urinary levels of levallorphan and nalorphine are not reported in the literature.

∞Meperidine urinary concentrations of 150000 ng/mL have been measured in cases of fatal meperidine overdosage.

The table below lists the concentrations of compounds that show a negative response to the EMIT II Plus Opiate Assay at both cutoff levels:

Compound **Conc. At 300 ng/mL cutoff AND 2000 ng/mL cutoff**

Acetaminophen	1000 µg/mL
L-α-Acetylmethadol (LAAM)	25 µg/mL
N-Acetylprocainamide (NAPA)	400 µg/mL
Acetylsalicylic Acid	1000 µg/mL
Amitriptyline	7 µg/mL
D-Amphetamine	1000 µg/mL
Benzoyllecgonine	1000 µg/mL
Buprenorphine	100 µg/mL
Caffeine	1000 µg/mL
Cimetidine	1000 µg/mL
Clomipramine	2.5 µg/mL
Clonidine	1000 µg/mL
Cotinine	100 µg/mL
Cyclobenzaprine	63 µg/mL
Desipramine	25 µg/mL
Diphenhydramine	500 µg/mL
Doxepin	10 µg/mL
2-Ethylidene-1,5-dimethyl-3,3-diphenylpyrrolidine (EDDP)	1000 µg/mL
Fluoxetine	500 µg/mL
Glutethimide	500 µg/mL
Ibuprofen	1000 µg/mL
Ketamine	100 µg/mL
Ketorolac Tromethamine	1000 µg/mL
Lormetazepam	1 µg/mL
LSD	10 ng/mL
D-Methamphetamine	35 µg/mL
Methaqualone	1500 µg/mL
Nalbuphine	1000 µg/mL
Naproxen	1000 µg/mL
Nortriptyline	250 µg/mL
Oxazepam	300 µg/mL
Phencyclidine	1000 µg/mL
Phenytoin	1000 µg/mL
Promethazine	2 µg/mL

Propoxyphene	1000 µg/mL
Ranitidine	900 µg/mL
Scopolamine	500 µg/mL
Secobarbital	1000 µg/mL
Tapentadol	45 µg/mL
11-nor- Δ^9 -THC-9-COOH	100 µg/mL
Thioridazine	100 µg/mL
Tramadol	1000 µg/mL
Tyramine	100 µg/mL
Zidovudine (AZT)	2 mg/mL
Zolpidem	100 µg/mL

Limitations

- Therapeutic doses of Ofloxacin (Floxin®) or Levofloxacin (Levaquin®), non-opiates, may produce positive results with this assay. A positive result from an individual taking Ofloxacin or Levofloxacin should be interpreted with caution and confirmed by another method.
- Poppy seeds can contain opiates and ingestion of products containing poppy seeds can cause a positive test result at the 300 ng/mL cutoff.

Sensitivity

The sensitivity level (minimum detectable limit) of the Emit II Plus Opiate Assay using the 300 ng/mL is 16 ng/mL and the sensitivity using the 2000 ng/mL cutoff is 140 ng/mL. These levels represents the lowest concentration of opiate that can be distinguished from 0 ng/mL with a confidence level of 95%.

CAMC laboratories use the 300 ng/mL cutoff for the opiate assay.

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