



6-Acetylmorphine Urine HEIA

With the new 6-Acetylmorphine (6-AM) Urine HEIA, Specialty Diagnostix and Immunalysis introduce a highly specific and extremely sensitive method for the determination of recent heroin abuse. Based on the new recombinant antigen-binding fragment (rFAB) technology, this homogeneous enzyme immunoassay provides an excellent tool to distinguish between samples that are positive for opiates due to heroin consumption and samples that are positive due to morphine intake, prescription medication or poppy seed ingestion.

Assay Characteristics

- rFAB technology for enhanced performance, superior specificity and targeted selectivity
- Virtually no cross-reactivity to morphine and its metabolites (XR < 0,005%)
- no significant cross-reactivity to other relevant opiates (i.e. codeine, dihydrocodeine & morphine glucuronides)
- Liquid, ready-to-use reagents, calibrators, and controls – no reconstitution
- Application protocols for all major clinical chemistry analyzers
- Packaging tailored to your laboratory's unique needs
- Use of synthetic material to enhance stability of calibrators and controls, and to decrease risk of contamination



Background

6-Acetylmorphine (6-AM) is an active metabolite of heroin (diacetylmorphine). While Heroin itself has an extremely short half-life, it is rapidly metabolized after consumption to 6-AM by esterase enzymes in the brain. Subsequently, 6-AM is further metabolized to morphine or directly excreted in the urine. Since 6-AM is a unique metabolite to heroin, its presence in a urine sample suggests that heroin was used as recently as within the last day. Trace amounts of 6-AM are excreted for several hours following heroin use, so a urine specimen should be collected soon after.

In most European countries, heroin withdrawal therapy programs either use methadone or buprenorphine as the substitution medication of choice. In some countries (e.g. Austria), however, morphine (morphine sulphate and/or morphine hydrochloride) is rather more prevalent. To clearly detect consumption or abuse of heroin during withdrawal therapy, the accurate detection of 6-acetylmorphine in the screening methods employed is absolutely crucial.

Cross-Reactivities

Analyte	Concentration (ng/mL)	Cross-reactivity (%)
6-Acetylmorphine	10	100
6-Acetylcodeine	600	1.7
Diacetylmorphine (Heroin)	1 375	0.7
Morphine	285 000	0.0035
Morphine 3-D-Glucuronide	1 000 000	N.D.
Morphine 6-D-Glucuronide	1 000 000	N.D.
Buprenorphine	1 000 000	N.D.
Codeine	1 000 000	N.D.
Dextromethorphan	1 000 000	N.D.
Dihydrocodeine	1 000 000	N.D.
Ethylmorphine	1 000 000	N.D.
Hydrocodone	1 000 000	N.D.
Hydromorphone	325 000	0.0030
Imipramine	1 000 000	N.D.
Levorphanol	1 000 000	N.D.
Meperidine / Pethidine	1 000 000	N.D.
Nalorphine	80 000	0.0125
Naloxone	300 000	0.0033
Naltrexone	390 000	0.0026
Naproxen	1 000 000	N.D.
Norbuprenorphine	100 000	N.D.
Nordcodeine	1 000 000	N.D.
Normorphine	250 000	0.0040
Oxycodone	1 000 000	N.D.
Oxymorphone	360 000	0.0028

Accuracy

A total of 80 human urine samples were assayed with the Immunalysis 6-Acetylmorphine Assay at 10 ng/mL on the Beckman Coulter AU400 analyser against LC-MS/MS:

10 ng/mL c/o		LC-MS/MS	
		+	-
6-AM HEIA	+	40	0
	-	0	40

Ordering Information

Reagents	Size	Order No.
6-Acetylmorphine Urine HEIA	25 mL	347UR-0025
	60 mL	347UR-0060W
	100 mL	347UR-0100
Calibrators		
6-Acetylmorphine Urine Calibrator	1 x 5 mL	C347UR-5-1
Controls		
6-Acetylmorphine Urine Control	2 x 5 mL	C347UR-5-2



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