

Frequently Asked Questions

Hair Testing

Q: Why drug test?

A: Employee drug use can put employers at a risk of increased accidents, increased absenteeism, lower productivity, and higher insurance costs. Hair testing, like all drug testing methodologies, helps to mitigate these risks by filtering out drug users from an employer's workforce as well as deterring drug use within it.

Q: Why hair testing?

A: Hair testing for drugs of abuse is the only drug testing method available that provides up to a 90-day history of repetitive drug use. When compared with urine testing, hair testing tends to provide a greater number of positives due to its longer detection window. Hair testing requires a small sample of hair that is collected under direct supervision without any invasion of privacy.

Q: What sets Quest Diagnostics hair testing apart?

A: The accuracy and reliability of the results we provide is paramount. Yet, hair testing with Quest Diagnostics extends beyond just the results themselves. We pride ourselves on working closely with our clients to develop a comprehensive drug testing program supported by our knowledgeable customer service representatives. Our goal is to answer your questions, to ensure your program runs smoothly, and to show that *we're there when you need us™*.

Q: What drug testing situations are best suited to hair testing?

A: A hair test is the most effective way to evaluate long-term patterns of use, making it an excellent option for pre-employment and random testing programs. Because hair testing detects a pattern of repetitive drug use over a longer period, usually up to 90 days, it is not an appropriate method for post-accident or reasonable suspicion testing. In both of these situations, the drug testing procedure should detect the drug as closely as possible to the time of the incident making urine or oral fluid testing a better choice. However, hair tests are appropriate for random testing protocols – especially if hair was used for the pre-employment test or the employee has been working for more than 90 days.

Q: What is the standard turnaround time for a hair drug test result?

A: Dependable turnaround times drive timely decisions. Hair specimens are sent to Quest Diagnostics by overnight delivery and are typically tested on the day they arrive at our laboratory. Negative results are often released within 24 hours. Non-negative specimens undergo confirmatory testing and results are typically released within an additional 24 to 72 hours.

Q: What testing methodology is used for hair drug tests?

A: A two-tiered testing process is used:

1. A portion of the hair specimen is screened using an Enzyme-Linked Immunosorbent Assay (ELISA)—a reliable and proven methodology for routine drug testing.
2. Any specimens that are presumptively positive in the screening process are then confirmed utilizing another portion of the hair specimen, with either gas chromatography-mass spectrometry (GC-MS), gas chromatography-mass spectrometry/mass

spectrometry (GC-MS/MS), or liquid chromatography-mass spectrometry/mass spectrometry (LC-MS/MS).

Q: What is ELISA?

A: ELISA is an acronym for Enzyme-Linked Immunosorbent Assay. A type of immunoassay, ELISA, is a rapid screening technology that uses an antibody attached to a solid support (microtiter plate) to detect drugs in biological matrices such as hair.

Q: Is ELISA forensically defensible?

A: Yes, the technology is well established and has been used in many formats for the analysis of drugs of abuse, therapeutic drug monitoring (TDM), serology (antibody tests), and blood banking procedures. Furthermore, ELISA technology is used extensively in the pharmaceutical industry for new drug screening and development.

Q: What is the difference between EIA and ELISA?

A: EIA is the more traditional enzyme immunoassay. The technology has been widely used for the analysis of drugs of abuse. It is homogenous in nature meaning that the analysis is performed without any physical separation during the analysis. In contrast, ELISA is heterogeneous—the microtiter plate is washed before the reaction is allowed to go to completion.

Q: What is the difference between GC-MS and GC-MS/MS?

A: GC-MS, or Gas Chromatography-Mass Spectrometry, is the more traditional confirmation method for drugs of abuse testing. Both technologies produce a “molecular fingerprint” of the drug or compound being analyzed and provide definitive identification. GC-MS/MS is a newer technology that is also known as “tandem MS” and generally provides greater sensitivity which may be necessary for the analysis of alternative specimens, such as hair or oral fluid.

Q: What is LC-MS/MS?

A: Like GC-MS, LC-MS, Liquid Chromatography- Mass Spectrometry, is an analytical technique that identifies and quantitates drugs of abuse. Instead of a gas separation phase, LC-MS utilizes a liquid phase for specimen separation in conjunction with the mass analysis ability of Mass Spectrometry (MS) to provide definitive identification of the drug. Similar to GC-MS/MS, LC-MS/MS or “LC-tandem MS” generally provides greater sensitivity, which may be necessary for the analysis of alternative specimens, such as hair or oral fluid.

Q: What is “tandem MS”?

A: Tandem mass spectrometry (MS/MS) is an analytical technique that combines two mass spectrometers into one instrument, which provides greater sensitivity. As a compound is introduced into the MS/MS, usually by a chromatographic method such as gas chromatography (GC) or liquid chromatography (LC), the first MS ionizes the compound into a few, very specific pieces. These pieces or molecular fragments are characteristic of individual compounds. They are called precursor (or parent) ions. The precursor ions produced by the first MS can be filtered so that only specific fragments are allowed entry into the second MS. The second MS takes the precursor ions and fragments (ionizes, breaks) them into smaller, highly specific pieces called product ions. The product ions are used as the “molecular fingerprint” to identify the compound of interest.

Q: What certifications do Quest Diagnostics drug testing laboratories maintain?

A: Our Lenexa, KS laboratory that performs hair and oral fluid testing has certifications and accreditations that lead the industry and include SAMHSA (urine), CAP-FDT (hair, oral fluid,

and urine), Florida (hair and urine), and New York State (hair, oral fluid and urine). Furthermore, our hair testing procedures have been published in peer-reviewed journals and presented at scientific meetings.

Q: Can I see the hair testing laboratory in process?

A: While there is no better way to learn about our testing processes than to take a live, on-site laboratory tour, [our video](#) is the next best option as it details the processes and procedures involved in testing hair for drugs of abuse.

Q: What drugs are tested with hair testing?

A: Quest Diagnostics tests hair specimens for the following drugs/classes and includes reporting of the indicated drugs:

- Amphetamines (amphetamine, methamphetamine, MDMA, and MDA)
- Opiates (codeine, morphine and 6-monoacetylmorphine) or “expanded” opiates (which includes semi-synthetic opiates)
- Cocaine (and cocaine metabolites)
- Marijuana metabolite (THC carboxylic acid metabolite)
- PCP (phencyclidine)

Q: Can hair testing detect oxycodone or other semi-synthetic opiates?

A: Yes. Upon request, a customer’s drug testing panel may also include confirmatory testing for semi-synthetic “expanded” opiates (hydrocodone, hydromorphone, oxycodone, and oxymorphone).

Q: Do the test results reflect drug use over the past 90 days?

A: Yes, they can. Hair follicles underneath the scalp are surrounded by a dense network of capillary blood vessels. Drugs in the bloodstream are able to incorporate and bind to the growing hair follicles underneath the scalp. It takes approximately 5 to 10 days for hair containing drug to reach the surface of the scalp to be collected based on the average rate of head hair growth. Head hair, from the crown or vertex of the scalp, grows approximately 1.3 cm or a ½ inch per month. The standard length of hair tested by the laboratory is the first 3.9 cm or 1½ inches from the root end. Therefore, a hair analysis of 3.9 cm covers a time span of approximately 90 days and detects a pattern of repetitive drug use over this timeframe.

Many employers find it useful to test both hair and urine (or oral fluid) for pre-employment purposes. Urine (or oral fluid) is useful for detecting recent or new drug use (the last one to three days) and hair for providing an approximate three-month history of repetitive drug use.

Q: What are the cutoffs and analytes for the standard 5-panel hair test?

DRUG CLASS	INITIAL TEST LEVEL	CONFIRMATORY LEVEL	CONFIRMATORY METHOD
AMPHETAMINES	300 pg/mg		
Amphetamine		300 pg/mg	GC-MS
Methamphetamine		300 pg/mg	GC-MS
MDA (methylenedioxyamphetamine)		300 pg/mg	GC-MS
MDMA (methylenedioxymethamphetamine)	300 pg/mg	GC-MS	
COCAINE / METABOLITES	300 pg/mg		
Benzoylcegonine		300 pg/mg	GC-MS
Cocaine		300 pg/mg	GC-MS
Cocaethylene		300 pg/mg	GC-MS
Norcocaine		300 pg/mg	GC-MS
MARIJUANA	1.0 pg/mg		
THCA metabolite		0.1 pg/mg	GC-MS/MS
PHENCYCLIDINE	300 pg/mg	300 pg/mg	GC-MS
OPIATES*	500 pg/mg		
Morphine		500 pg/mg	GC-MS
Codeine		500 pg/mg	GC-MS
6-Acetylmorphine (6-AM)		500 pg/mg	GC-MS
EXPANDED OPIATES*	500 pg/mg		
Morphine		500 pg/mg	GC-MS
Codeine		500 pg/mg	GC-MS
6-Acetylmorphine (6-AM)		500 pg/mg	GC-MS
Hydromorphone		500 pg/mg	GC-MS
Hydrocodone		500 pg/mg	GC-MS
Oxycodone		500 pg/mg	GC-MS
Oxymorphone		500 pg/mg	GC-MS

*Panel can include either opiates or expanded opiates. Expanded opiates will incur an additional fee.

Q: What is the window of detection if hair from an alternate body location (e.g., chest, arm, etc.) is used?

A: The growth rate and rates of incorporation of drugs into hair from locations other than the head has not been studied as extensively as that of head hair. Moreover, unlike head hair which continues to grow, body hair tends to grow to a certain length and then stop growing. Consequently, one cannot reliably determine the window of detection of drugs using hair from alternative body sites.

Q: What is the positivity rate for hair drug tests using hair (General U.S. Workforce)?

A: The [Quest Diagnostics Drug Testing Index™](#) data shows current data for positivity for hair testing. The DTI reveals insights into patterns of drug use among the American workforce and is published as a public service for government, employers, policymakers, media, and the general public.

Q: How do I know whether or not my hair test included expanded opiates?

A: All reports include the name of the test(s) being ordered. In the case of hair tests that include expanded opiates, the order code listed in the “Tests Ordered” section of the laboratory report will include the following verbiage: “(EXPANDED OP)” or “EXPOSURE EXOP” – e.g. “Hair-5 (EXPANDED OP).”

Q: How long does the laboratory retain positive (non-negative) hair specimens?

A: Non-negative hair specimens are retained for a minimum of 12 months (the same as non-negative urine and oral fluid specimens.)

Q: Is it appropriate to analyze segments of hair to identify specific time periods of drug use?

A: No. While head hair grows at approximately ½ inch per month, the rate of growth is not constant between or within individuals. Consequently, we are of the opinion that segmental analysis should not be used to identify specific intervals of drug use in a forensically defensible manner.

Q: Does Quest Diagnostics use “wash” procedures in hair analysis?

A: Yes. All hair test specimens are washed prior to screening and confirmation analysis to remove external contamination. Please note that the “wash” procedures were reviewed by the U.S. Food and Drug Administration (FDA) as a part of 510(k) listing of the immunoassay screening tests.

Q: How do I know that Quest hair testing procedures are accurate and reliable?

A: The immunoassay screening tests utilized by Quest Diagnostics for the testing of drugs of abuse in hair are all FDA-listed. Also, our procedures have been presented in peer-reviewed journals and scientific meetings, and the test results have been successfully upheld in legal and administrative hearings.

Q: How are the results reported?

A: As with all laboratory-based drug testing, results are logged into the laboratory information system and reported to the client by direct interface, web reporting, confidential fax, printer or voice response.

Q: How long is a hair test result report maintained on file?

A: Laboratory testing records are maintained for a minimum of two (2) years.

Q: Can a hair test be beaten / adulterated?

A: We have not found any adulterants that can beat the test at this time. Moreover, the risk is minimized because every hair collection is directly and easily observed.

Q: How is a hair specimen collected?

A: We must have enough hair to repeat assays if necessary. Therefore, the requested amount of hair is approximately 100 mg made up of the first 1-½ inches (from the root end) of the hair specimen. Since hair weight varies by individual and since collectors do not have access to sensitive scales, it is easier to visualize in terms of the width or diameter of the hair specimen collected.

If the hair is more than four (4) inches long, we require approximately 120 strands. If placed in a bundle this quantity of hair would resemble the circumference of a pencil; or if laid flat, would be approximately 1 cm in width. It is critical that the root ends of the cut hair are aligned and placed with the root ends extending about ¼ inch beyond the pointed portion of the arrow formed by the foil in the collection kit. In order to approximate time of use (prior 90 days), the laboratory will cut and use about 1½ inches from the root end. If the collected hair is shorter than four (4) inches, but longer than a ½ inch, additional strands of hair (+120), or a larger quantity of hair is required to ensure an adequate amount is received to complete testing. If the hair is curly, root ends do not have to be kept aligned and the specimen size should resemble the size of a standard cotton ball.

If the donor has no head hair or hair shorter than ½ inch long, the collector may use chest, underarm, leg, or facial hair—in that order of preference. The amount collected should resemble a standard cotton ball. Collectors should note the source of the specimen on the hair collection envelope. This will aid in a more accurate interpretation of the drug test result. If body hair is collected, collectors make sure to collect as much as possible. This hair is usually lighter in weight and more is needed for testing.

Q: How much hair is needed to perform the drug test?

A: Quest Diagnostics standard screen usually requires a cosmetically undetectable lock of hair preferably snipped from the back of the head, just below the crown. In general, the amount needed equates to a single row of hairs approximately one centimeter wide.

Q: What is the difference between hair testing and hair follicle testing?

A: Calling a hair test a hair follicle test is a common misnomer. The hair follicle is actually the pocket, below the scalp, from which the hair strand grows. During a hair drug test collection, the hair is cut as close to the scalp as possible, so only the strands of hair above the scalp is tested and not the actual hair follicle. True hair follicle testing requires the hair to be “plucked” rather than cut which can lead to extreme donor discomfort.

Q: Can a hair test be performed on a person with little or no hair?

A: Yes. If a donor has little or no hair, hair can be collected from various locations and then combined. However, head should not be mixed with body hair—e.g., it is acceptable to combine hair collected from various locations on the scalp but not from the scalp and leg.

Q: Can hair collected from a brush be used?

A: No. Quest Diagnostics requires the hair specimen to be collected directly from the donor's head following standard collection protocols.

Q: How are collections performed on candidates that use artificial hairpieces or attachments to their own hair?

A: The collection process requires the collector to ensure that the specimen collected is the donor's hair. Body hair may be collected if head hair is not available.

Q: Can I use Quest Diagnostics if I need to test hair from an alternative body site.

A: Yes. Quest Diagnostics will test hair from alternative body sites and the laboratory report clearly indicates the hair source (e.g., head, underarm, chest, etc.)

Q: Can products and treatments affect hair drug test results?

A: When tested under worst-case scenario conditions, most treatments had minimal or no impact on test results for the majority of drugs. More specifically:

- When shampoos, sprays or gels were applied to cut hair samples, they had little or no effect on positive or negative hair specimens.
- When normal hair treatments, including bleaching or dyeing, were applied to cut hair samples, they typically did not interfere with the test results or change the reporting category—e.g. positive to negative.

Q: Is there a risk that the results of a hair test can be affected by environmental contamination?

A: No. Quest Diagnostics utilizes several independent approaches, in various combinations, to rule out the possibility of a positive result from external contamination:

- All samples are washed prior to analysis
- Some confirmatory assays involve analysis of the wash solution and a “wash correction”
- Some confirmatory assays require presence of metabolite to be reported positive

Taken together these procedures are designed to avoid false positives due to external contamination.

Q: What acceptance/rejection criteria does the laboratory use for proceeding with the analysis of a hair specimen?

A: The following are reasons for rejecting a hair specimen:

- No Chain of Custody Form (CCF)
- No way to link a hair specimen with the donor
- Quantity of hair insufficient for analysis (QNS)
- Length of hair less than 1 cm
- Hair submitted in envelopes, but not wrapped with the foil jacket.
- Hair submitted in containers other than approved envelopes, (i.e. urine bottles)
- Hair contaminated with lice or other parasites

Q: How many hair collection sites are available to perform Quest hair collections?

A: Our network of hair collection sites offers more than 1,300 locations across the U.S., with additional locations around the globe, that maintain hair collection supplies on-site for your donor's convenience. Our collectors complete online training in order to receive certification for hair testing and provide a professional experience with every collection.

Q: How does the collector transport the hair specimen to the laboratory?

A: We provide air bills for the shipping of specimens via overnight courier to our Lenexa, KS laboratory.

Q: Can hair testing be used for the U.S. Department of Transportation (DOT) testing?

A: No, the U.S. Department of Transportation has not approved hair testing at this time.

Q: Have Quest hair testing procedures withstood legal and/or administrative challenges?

A: Yes. Quest Diagnostics hair testing procedures and results have successfully withstood legal challenges in workplace testing, military proceedings, and other civil jurisdictions.

Q: Has Quest Diagnostics hair testing been admitted in court?

A: Yes. The results of Quest Diagnostics hair tests have been routinely admitted in both judicial and administrative hearings and arbitrations.

Q: Does Quest Diagnostics provide legal support for hair testing results?

A: Yes. We have been performing hair testing for drugs of abuse for more than 15 years. From the beginning, we've stood behind every hair test result reported by our lab. Our results have successfully withstood legal challenges in workplace drug testing, military proceedings and other civil jurisdictions. Our proven legal track record of success supports the fact that we provide reliable, accurate hair testing results that you can depend on.

Q: Is hair testing included in SAMHSA/"NIDA" guidelines?

A: Currently, urine is the only permitted specimen type for Federally-mandated—e.g., government employees or DOT and NRC regulated employers—testing. SAMHSA published proposed rules for hair testing more than 10-years ago and a subsequent request for information (RFI) in 2015. However, at this time, no final guidelines have been developed.

Q: Can I use the urine Custody and Control Form for a hair drug test?

A: No. There is an alternative specimen Custody and Control Form that should be used which is intended for the lab-based testing of both hair and oral fluid specimens.

Q: Can the hair test be completed if I use the regular Custody and Control Form by mistake or if I run out of alternate specimen Custody and Control Forms?

A: Yes, however the tamper-evident tape on the urine Custody and Control Form is designed for the urine bottle and is too long for the hair testing envelope.

Q: How do I order the hair collection kits?

A: While hair collection kits and supplies are provided at our collection sites, you may order the hair collection kits from Quest Diagnostics. Order these supplies using the same procedure you use to order routine Custody and Control Forms and the urine collection kits. Contact us at es.orders@questdiagnostics.com or 1.800.877.7484.

Q: What do I receive when I order hair collection kits?

A: Each hair test collection kit contains a specimen transportation bag, a hair specimen collection envelope, an alcohol pad and aluminum foil. Additionally, you will receive air bills for shipping the specimens to the Lenexa, KS, laboratory. *Please note that Custody and Control Forms must be ordered separately.*

Q: How much does a lab-based hair drug test cost?

A: The cost of the hair drug test will vary based upon volume and the number of drug panels selected. Also, the cost is lower if the collection takes place at a Quest Diagnostics Patient Service Center. Please contact your Sales or Account Management representative for more information.

Q: Who should I contact with questions about hair testing from Quest Diagnostics?

A: Contact your Sales or Account Management representative for more information or contact our National Customer Support Center at EmployerSolutions.com/Support or by calling 1.800.877.7484.