



最高人民检察院

GA500

HandHeld Hair Trace Drugs Analyzer



Intelligent Hair Trace Drugs Analyzer

GA500

Description:

During drug scenes, suspects do not cooperate with tests, making it difficult for police to obtain bodily fluids for narcotics testing.

The main component of human hair is keratin, which accounting for about 97%. After the person takes drug, drug can participate in the metabolism of human body, the metabolite of drug can enter the keratin of new hair. For hair that has already grown, drug metabolites can also enter the body through sweat glands or sebum secretion. In general, the drug ingredients in urine cannot be detected 5-10 days after taking drugs, and the hair may not fall off for months or even years, faithfully recording what happened in the body. That is to say, as long as the hair is long enough, the hair can reflect the owner's drug use! For example, a woman's tens of centimeters of hair can even reflect the drug use situation within a few years.

GA500 intelligent hair trace drugs analyzer, jointly developed by our company and Shanghai Public Security Bureau (803), handheld hair drug rapid detector, standard 4G module, supplementary light camera, and id card identification module, can be used for police on the spot law enforcement, can be photographed and authenticated for drug users on the spot. The device is equipped with 4000 MA battery, which can be used for one day with full power (100 samples tested), and the on-site printing results will be used as the basis for on-site inspection and disposal of anti-drug police.

GA500 adopts advanced rare-earth fluorescence technology, can easily generate hairs within 10 minutes of morphine, methamphetamine (commonly known as crystal meth) and ketamine (commonly known as K) three common drugs, and methcathinone, benzodiazepine and cocaine, quickly and accurately test result meet the demand of qualitative quantitative analysis, at the same time the results and numerical printed.

Feature:

- **Advanced Technically:** Rare earth luminescence technology is a new and most accurate immunoassay technology.
- **Rapid Detection:** Quantitative detection of drug content in hair samples of suspected persons can be quickly completed within 10 minutes.
- **High Sensitive:** A minimum detectable level of 0.2ng/mg, and is in line with the industry standard of the Drug Association.
- **Convenient Sampling:** A little hair(5 mg), no privacy, no adulteration.
- **Convenient Store:** Hair can be stored at room temperature, while urine, blood and other materials generally need to be stored in cold storage.
- **Period Long:** The hair can be used to detect whether the suspicious person contains drugs within 3-6 months.
- **Constant Environment:** Using the incubator can effectively eliminate the influence of factors such as time and room temperature.
- **Accurate Quantitative:** Accurate sampling method and constant experimental process ensure the higher reference of quantitative test results.
- **Use Easy:** The testing personnel only needs simple training for precise operation.
- **Field Test:** The necessary instruments, reagents and other accessories are all packed in the test box of about 26 inches of luggage.

Application:

- Against drug for public.
- Drug test at driving schools.

1.1 Product Background:

With the rapid development of globalization and society, drug crime in China has a tendency of high incidence and abuse. Relevant departments of China attach great importance to scientific research on drug control. Among them, improving drug detection technology has become an important part of drug control research.

During drug scenes, suspects do not cooperate with tests, making it difficult for police to obtain bodily fluids for drug testing. In order to deal with the problems existing in the urine and saliva detection of drug addicts by anti-drug police, accurate service drug control combat, used for actual combat, close to the actual work needs, the Ministry of Public Security issued by the "standard of drug-related personnel hair samples", put forward for drug-related personnel hair sample extraction, storage, inspection and testing requirements. According to the request, OPTOSKY developed GA500 Handheld Hair Drug Analyzer. At present, the product has obtained the product inspection report issued by the Safety and Police electronic product Quality Testing Center of Ministry of Public Security, the scientific and technological novelty checking report issued by the provincial science and technology department.

1.2 Advantage:

In order to accurately judge whether drug addicts take drugs, what kind of drugs they take, and whether drug residues are still in the body of drug rehab, the application of various drugs detection technologies has become an important part of narcotic drugs control research. The main test objects are: hair detection, blood detection, urine and saliva detection now.

	urine	saliva	blood	毛发
get the material	E	E	D	E
degree of difficulty				
requirements for	E	E	D	L
sample storage				
sample adulteration	E	D	D	D
degree of difficulty				
sample contaminated	L	H	L	L
degree of difficulty				
Detection timeliness	2-3days	1-2days	<24h	Two weeks to six months after taking drugs

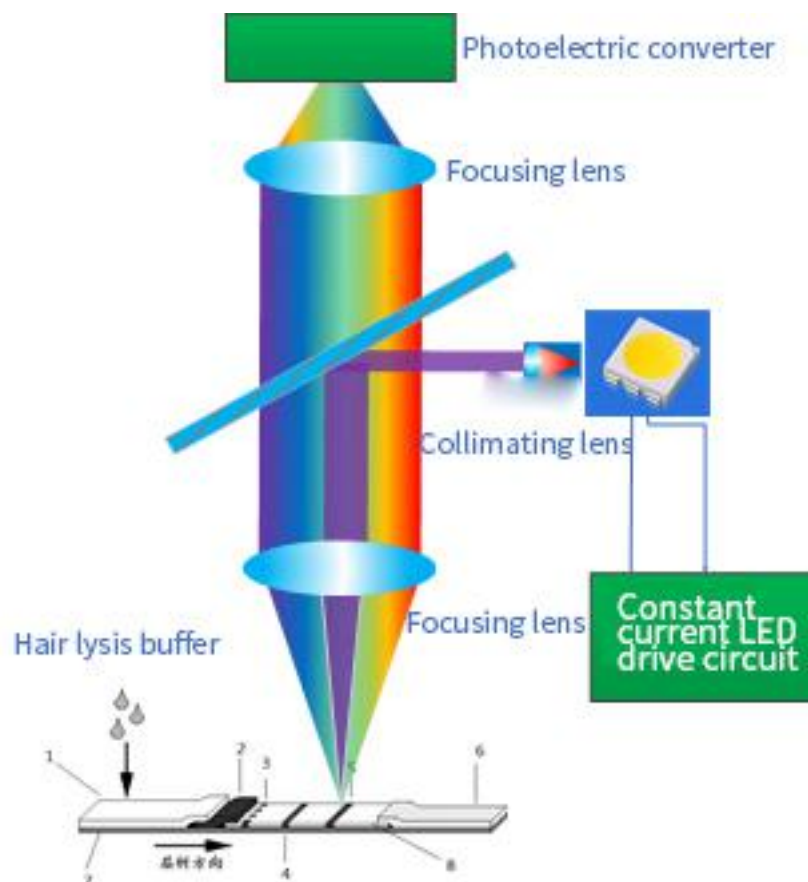
Figure 2 Comparison of various detection methods

As a statutory biological test samples, hair has unparalleled advantages. Hair follicle surrounding is to have dense capillaries, the narcotics or drugs in the blood in the growth process of hair, enter the hair follicle of scalp from blood, and be fixed by keratin in hair, the time of about 3-5 days contains the hair of medicine to grow out scalp surface. Hair grows outward at a geostationary rate, a mechanism by which one can infer the variety, timing, and dosage of drug abuse, which is what "trace" detection is all about.

Hair drug trace detection technology also has unique advantage, including: long detection time limit, comprehensive information on narcotics or drug abuse, anti-corruption, easy to collect, easy to save, repeatable sampling, etc. Among them, the detection time long is the most prominent advantage. According to the length of hair, the drug use can be reflected for weeks to months, and the drug use history can be up to 3-6 months. Combined with urine detection technology, the drug abuse situation of the tested can be comprehensively evaluated to meet the need of narcotic control and rehabilitation work.

1.3 Technology Principle:

Time resolved fluorescence analysis (TRFIA) is a special fluorescence analysis based on fluorescence analysis (FIA). It uses lanthanides to label antigens, or antibodies, according to the luminescence characteristics of lanthanide chelates, uses time-resolved techniques to measure fluorescence, and the signal was resolved by wavelength and time. The interference of non-specific could be effectively eliminated, and the analysis sensitivity was greatly improved.



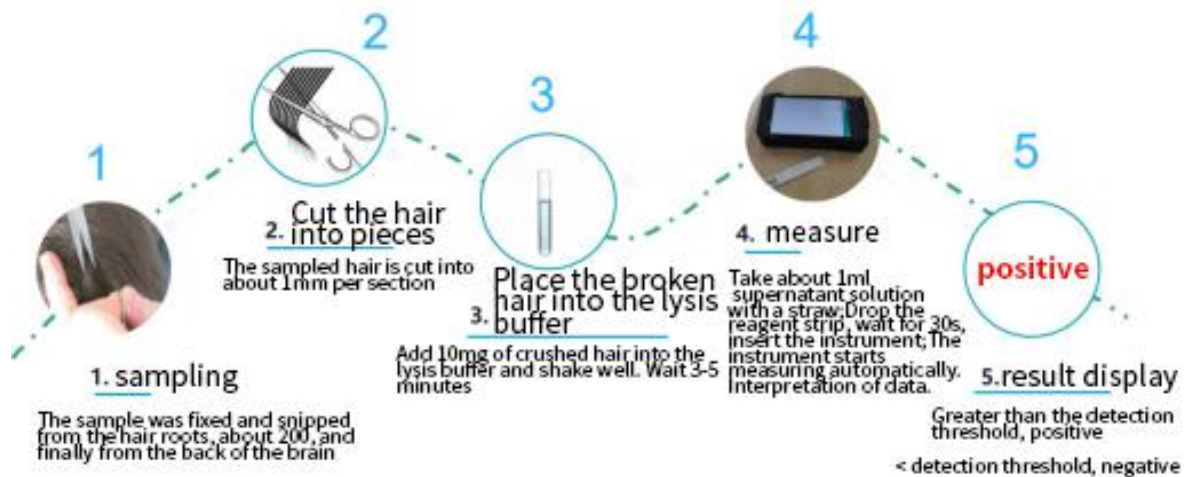
Fluorescence analysis use the wide different of the fluorescence wave length and excitation wavelength to conquer the influence of heterogeneous light of uv-vis spectroscopic analysis. At the same time, fluorescence analysis is different with

ordinary spectral, the photoelectric receiver and the excitation light are not in the same line, so the excitation light cannot reach the photoelectric receiver directly, which greatly improves the sensitivity of optical analysis. However, when ultramicro analysis is carried, the effect of stray light on the excitation light is serious. Therefore, it is a bottleneck to improve sensitivity to solve the influence of stray light.

The best way to deal with the effects of stray light is to measure without the presence of excited light. But the common fluorescence marker has a very short fluorescence life, and the excitation light disappears, and fluorescence also disappears. However, very few rare earth metals (Eu, Tb, Sm, Dy) have a long fluorescence life, up to 1~2ms, which can meet the measurement requirements. Therefore, time-resolved fluorescence analysis method, that is, using long-acting fluorescence marks, can be used to measure fluorescence intensity after the excitation light is turned off.

GA500 Hair Trace Drugs Analyzer, using time-resolved fluorescence analysis method, according to the launch of the beam fluorescence analysis of forbidden drugs inspection quickly, with a high signal-to-noise ratio, high resolution, long takanami precision, rich test accessories, etc., in five minutes to complete testing, easy to satisfy for quantitative analysis of drugs and the demand of scientific research.

1.4 Test Process:



1.5 Product Overview:

OPTOSKY GA500 Hair Trace Drugs Analyzer use advanced rare earth fluorescence technology, according to the light beam emitted by rare earth, the rapid and accurate detection results of morphine, meth and ketamine (commonly known as K powder) in hair can be easily generated in 10 minutes. It has the characteristics of high signal-to-noise ratio, high resolution, high wavelength precision, rich test accessories,

etc., and can easily meet the requirements of qualitative and quantitative analysis and scientific research of the drug violation in 10 minutes. At the same time, the results and numerical values are printed out as the basis for on-site inspection and disposal of anti-drug police.

1.6 Product Feature & Advantage:

- 1) **Advanced Technically:** Rare earth fluorescence is a new and most accurate immunoassay technology.
- 2) **Rapid Detection:** The quantitative detection of drug content in hair samples of suspected persons can be quickly completed within 10 minutes.
- 3) **High Sensitive:** The quantitative detection of drug content in hair samples of suspected persons can be quickly completed within 10 minutes.
- 4) **Convenient Sampling:** A little hair (5mg), no privacy, avoid adulteration.
- 5) **Convenient Store:** Hair can be stored at room temperature, while urine, blood and other materials generally need to be stored at low temperature and frozen.
- 6) **Period Long:** The use of hair can detect the longest 3-6 months in the body of the suspect whether there are drugs.
- 7) **Constant Environment:** Using a constant temperature incubator can effectively eliminate the influence of factors such as time and room temperature on the reaction.
- 8) **Accurate Quantitative:** Accurate sampling method and constant experimental process ensure higher reference quantitative test results.
- 9) **Use Easy:** The precise operation can be achieved by simply training the inspectors.
- 10) **Field Test:** The necessary instruments, reagents and other accessories are all packed in the test box of about 20 inches of luggage.

1.7 Compared Of Test Methods:

Figure 1 Comparison of different detection methods

	chromatography	euzymelinked immunosorbent assay	colloidal gold method	fluorescence analysis
Time	2 hours	2 hours	5-10mins	5-10mins
Sensitivity	H	L	L	H
Operating steps	Complex	Complex	Simple	Simple
Specificity	H	H	L	H
Field Test	unprocurable	unprocurable	realizable	realizable

1.8 Configuration

Product	Accessories	Num	Unit	Remark
Intelligent detector	Handheld hair trace drugs analyzer	1	piece	Field rapid tester for rare earth method
Hair sampling tool	Scissors	1	pair	Sampling and processing tools
	Sampling tweezers	1	pair	Sampling and processing tools
Hair drug fast analysis consumables, etc	Rectangular sampling bag	20	piece	Hair sampling bag, paper envelope
	Alcohol wiping paper	1	box	Disinfect tools
	Black oily pen	1	branch	marking pen
	Pan paper	1	bag	Square, 100 sheets
	Morphine rare earth detection kit	1	box	50 person/box, Precision: 0.2ng/mg
	Methyl amphetamine rare earth detection kit	1	box	50 person/box, Precision: 0.2ng/mg
	Ketamine rare earth detection kit	0	box	50 person/box, Precision: 0.2ng/mg