

D/L Methamphetamine Isomer Testing

What the result means and how to use it in patient care



PRETORIAN
LABS

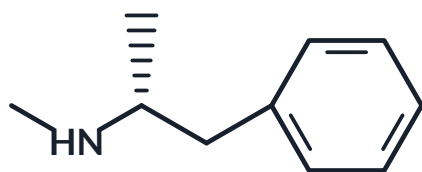
D/L Isomer Testing • v2.0 • 2026

OVERVIEW

Pretorian Labs reports D/L isomer differentiation on every confirmed positive methamphetamine result. This added detail distinguishes exposure to illicit or prescription methamphetamine from exposure to common over-the-counter and prescription products — information that can meaningfully change a treatment or care decision.

WHY METHAMPHETAMINE HAS TWO FORMS

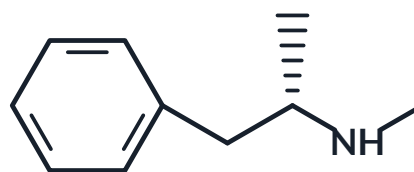
Methamphetamine exists in two forms called **enantiomers** — mirror images of one another. Much like your hands, the two structures cannot be superimposed, but are identical reflected images. Although they share the same chemical formula, their biological effects are entirely different.



(R)-N-methyl-1-phenylpropan-2-amine

L-methamphetamine

Uncommon nasal decongestant, available over the counter. Not psychoactive.



(S)-N-methyl-1-phenylpropan-2-amine

D-methamphetamine

What most people mean by “meth.” Controlled substance, psychoactive.

Figure 1. Mirror-image structures of L- and D-methamphetamine.

HOW THE TWO ISOMERS DIFFER

	L-METHAMPHETAMINE levo	D-METHAMPHETAMINE dextro
CNS activity	None — not a stimulant	Potent central nervous system stimulant
Common sources	OTC nasal decongestant inhalers (e.g. Vicks VapoInhaler); major metabolite of selegiline, used in Parkinson's disease	Illicit methamphetamine; Desoxyn (ADHD, appetite suppression); primary metabolite of benzphetamine (Didrex)
Scheduling	Available over the counter	DEA Schedule II controlled substance
Clinical significance	Consistent with legitimate OTC or prescription exposure	Most often indicates illicit methamphetamine exposure, unless a D-isomer prescription is documented

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HOW PRETORIAN LABS REPORTS THE RESULT

When a methamphetamine confirmation result exceeds **100 ng/mL**, D/L isomer analysis is performed automatically — no additional order is required. The isomer result appears on the report directly beneath the methamphetamine result, as a sub-result.

ON YOUR REPORT

Methamphetamine D-isomer greater than 20%: YES or NO

When YES, the report includes: "Greater than 20% presence of D-methamphetamine isomer likely indicates use of illicit methamphetamine or the prescription drugs Desoxyn (methamphetamine) or Didrex (benzphetamine)."

WHY THE THRESHOLD IS 20%

Federal drug testing policy holds that specimens containing 20% or more D-methamphetamine are consistent with exposure to illicit or prescription D-methamphetamine. The threshold is deliberately set low rather than high: illicitly manufactured methamphetamine is produced in poorly controlled conditions that do not selectively yield the D-isomer, so street methamphetamine almost always contains a mixture of both. A result below 20% D-isomer is therefore more consistent with an OTC or selegiline source.

INTERPRETING RESULTS IN PRACTICE

D-isomer greater than 20%	Consistent with illicit methamphetamine use, or with a documented prescription for Desoxyn or Didrex. Review the patient's medication list before drawing a conclusion.
D-isomer 20% or less	Consistent with OTC nasal inhaler use or selegiline therapy, neither of which produces CNS stimulation.
Either result	Should be interpreted alongside the patient's clinical presentation, prescribed medications, and history. Isomer differentiation clarifies the likely <i>source</i> of a positive result; it does not establish intent, timing, or amount of use.

QUESTIONS

Our toxicology team is available to discuss individual results or the methodology behind this testing. Contact your Pretorian Labs account manager and ask to be connected with the Toxicology division.

For healthcare provider education. Results should be interpreted in the context of the patient's clinical presentation and medication history. This laboratory is certified under CLIA as qualified to perform high complexity clinical laboratory testing.