



# Benzodiazepine Group ELISA Kit

## Benzodiazepine Background

Since their introduction in the 1960s, benzodiazepines have been widely prescribed for the treatment of anxiety, insomnia, muscle spasms, alcohol withdrawal, and seizure-prevention as they are depressants of the central nervous system. Despite the fact that they are highly effective for their intended use, benzodiazepines are prescribed with caution as they can be highly addictive. In fact, researchers at NIDA (National Institute on Drug Abuse) have shown that addiction for benzodiazepines is similar to that of opioids, cannabinoids, and GHB.

Common street names of benzodiazepines include “Benzos” and “Downers”. The five most encountered benzodiazepines on the illicit market are alprazolam (Xanax), lorazepam (Ativan), clonazepam (Klonopin), diazepam (Valium), and temazepam (Restori). The method of abuse is typically oral or snorted in crushed form. The DEA notes a particularly high rate of abuse among heroin and cocaine abusers.

Designer benzodiazepines are currently offered in online shops selling “research chemicals”, providing drug abusers an alternative to prescription-only benzodiazepines. Data defining pharmacokinetic parameters, drug metabolisms, and detectability in biological fluids is limited. This lack of information presents a challenge to forensic laboratories. Changes in national narcotics laws in many countries led to the control of (phenazepam and etizolam), which were marketed by pharmaceutical companies in some countries. With the control of phenazepam and etizolam, clandestine laboratories have begun researching and manufacturing alternative benzodiazepines as legal substitutes. Delorazepam, diclazepam, pyrazolam, and flubromazepam have emerged as compounds in this class of drugs.

## References

Drug Enforcement Administration, Office of Diversion Control. “Benzodiazepines.” [http://www.deadiversion.usdoj.gov/drugs\\_concern/benzo\\_1.htm](http://www.deadiversion.usdoj.gov/drugs_concern/benzo_1.htm). December 2010.

National Institute on Drug Abuse (NIDA). “Well-Known Mechanism Underlies Benzodiazepines’ Addictive Properties.” <http://www.drugabuse.gov/news-events/nida-notes/2014/04/well-known-mechanisms-underlies-benzodiazepines-addictive-properties>. April 2012.

B. Moosmann, M. Hutter, L. Huppertz, S. Ferlino, L. Redlingshöfer, V., Auwärter. Characterization of the designer benzodiazepine pyrazolam and its detectability in human serum and urine. *Forensic Toxicol.* 2013, 31, 263.

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NEOGEN<sup>®</sup>’s Benzodiazepine Group ELISA test kit is successful in detecting more than 20 analytes, including the top five most encountered benzodiazepines along with designer benzodiazepines. With a detection level between 1 ng/mL and 10 ng/mL, NEOGEN’s benzodiazepine kit is preferred when it comes to sensitivity.

NEOGEN’s 30-year history of developing ELISA test kits and reagents is also why laboratories trust us to be their preferred forensic ELISA test kit source.

## Product Features

- Ultimate detection of major drug analyte oxazepam
- Ultra-sensitive detection of more than 20 benzodiazepines, including phenazepam, etizolam, delorazepam, diclazepam, pyrazolam, flubromazepam, alprazolam, lorazepam, clonazepam, diazepam, and temazepam
- Validated for human urine, whole blood, and oral fluid





## Sensitivity and Specificity

Cross-reactivity Profile		
Drug	I-50 (ng/ml)	% Cross-reactivity
Oxazepam	5.81	100
Flualprazolam	1.24	467
Diazepam	1.34	434
Estazolam	1.60	365
Nordiazepam	1.61	361
Alprazolam	1.68	346
Tetrazepam	2.20	264
Flurazepam	2.22	262
Flubromazolam	2.30	253
Lormetazepam	2.52	231
Prazepam	2.94	198
Temazepam	3.02	192
Phenazepam	3.05	190
Halazepam	3.36	173
Triazolam	3.39	171
7-amino-Flunitrazepam	3.94	147
Diclazepam	4.10	142
Nitrazepam	4.11	141
Flubromazepam	4.83	120
N-desmethyl Flunitrazepam	4.89	119
Delorazepam	4.91	115
Flunitrazepam	5.29	110
Pyrazolam	5.40	106
Etizolam	6.55	87
Bromazepam	6.80	85
Clonazepam	7.31	79
Nimetazepam	7.90	74
Lorazepam	8.27	70
Midazolam	8.93	65
Clobazam	9.93	59
7-amino-Clonazepam	14.78	39
alpha-hydroxy Alprazolam	23.65	25
Chlordiazepoxide	31.03	19

■ Indicates Designer Benzodiazepines

## Order Details

Product	Available Sizes	Product Number
Benzodiazepine Group (RTU) Forensic Kit	96-well package	130119
	480-well package	130115
β-Glucuronidase Reagent Pack	—	301605

Call 800.477.8201 to order or visit [NEOGEN.com](http://NEOGEN.com)

