

# Screening of PCP in hair using a homogeneous immunoassay procedure

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## Introduction

Hair is a useful specimen for the detection of long-term drug use. In general, drug concentrations in hair are lower than those identified in other matrices such as urine and blood. Specimen volume may be limited, so sensitive screening methods are necessary. Following PCP intake, the parent drug is detected in hair, so PCP is the target analyte.

## Methods

- Hair from PCP users (n = 10); Hair from drug free volunteers (n = 20)
- Cut into small pieces (10 mg)
- 0.025 M phosphate buffer added (pH 2.7; 0.5 mL)
- Incubated (3 hrs/75°C).
- Supernatant was analyzed using ELISA; and via homogeneous immunoassays (HEIA) on an Olympus 400 platform
- For ELISA, the supernatant was diluted 1:5 with 0.1 M PBS before plating;
- For HEIA, 10 µL of supernatant was used, making the process compatible with most commercial chemistry analyzers.

## Results

A screening cutoff of 300 pg/mg of PCP was used, (recommendation: Proposed Federal Guidelines 2004)  
Precision at 150, 300, 600, 2000 and 5000 pg/mg: 9.9%, 3.7%, 4.5%, 1.3 and 3.6%  
All negative specimens screened negatively using both ELISA and EIA; positive specimens are shown

Sample Cutoff	ELISA 300 pg/mg	HEIA 300 pg/mg	GC-MS Results pg/mg
1	P	P	1800
2	P	P	897
3	P	P	463
4	P	P	1135
5	P	P	764
6	P	P	443
7	P	P	3788
8	P	P	2951
9	P	P	399
10	P	P	7370

## Cross-reactivity

Drug	XR (%)
PCP	100
Dextromethorphan	4
Doxylamine	ND

## Summary

- The assay is precise, sensitive and conducive to rapid hair screening using commercial chemistry analyzers

Disclosure: Immunoanalysis Corporation manufactures and distributes the immunoassays described in this presentation