

Ostro Sample Preparation Products: Recovery

Waters Corporation

This is an Application Brief and does not contain a detailed
Experimental section.

Abstract

As part of the evaluation of the Ostro plate, recovery for a broad range of analytes in human and rat plasma was evaluated to judge how well potential target compounds could be quantified.

Benefits

The Ostro plate demonstrates excellent recovery across a variety of conditions

Introduction

Recovery determination is important for quantitative methods in that it provides a measure of the actual amount of analyte obtained from the matrix using a particular sample preparation device or technique. As part of the evaluation of the Ostro plate, recovery for a broad range of analytes in human and rat plasma was evaluated to judge how well potential target compounds could be quantified.

Experimental

Samples

- Human or rat plasma fortified at high, medium, and low concentrations
 - Low concentration range: 0.2-40 ng/mL
 - Medium concentration range: 2-400 ng/mL
 - High concentration range: 20-4,000 ng/mL
- 3 loading volumes:
 - 50 μ L plasma: 150 μ L of 1% HCOOH in ACN
 - 100 μ L plasma: 300 μ L of 1% HCOOH in ACN
 - 200 μ L plasma: 600 μ L of 1% HCOOH in ACN

Analyte mixture

- | | | | |
|---|------------------|---|----------------|
| · | Fluticasone | · | Niflumic Acid |
| · | 9-OH Risperidone | · | Propranolol |
| · | Clonazepam | · | Ketoprofen |
| · | Imipramine | · | Naproxen |
| · | Valethamate | · | Salicylic Acid |
| · | Terfenadine | · | Caffeine |

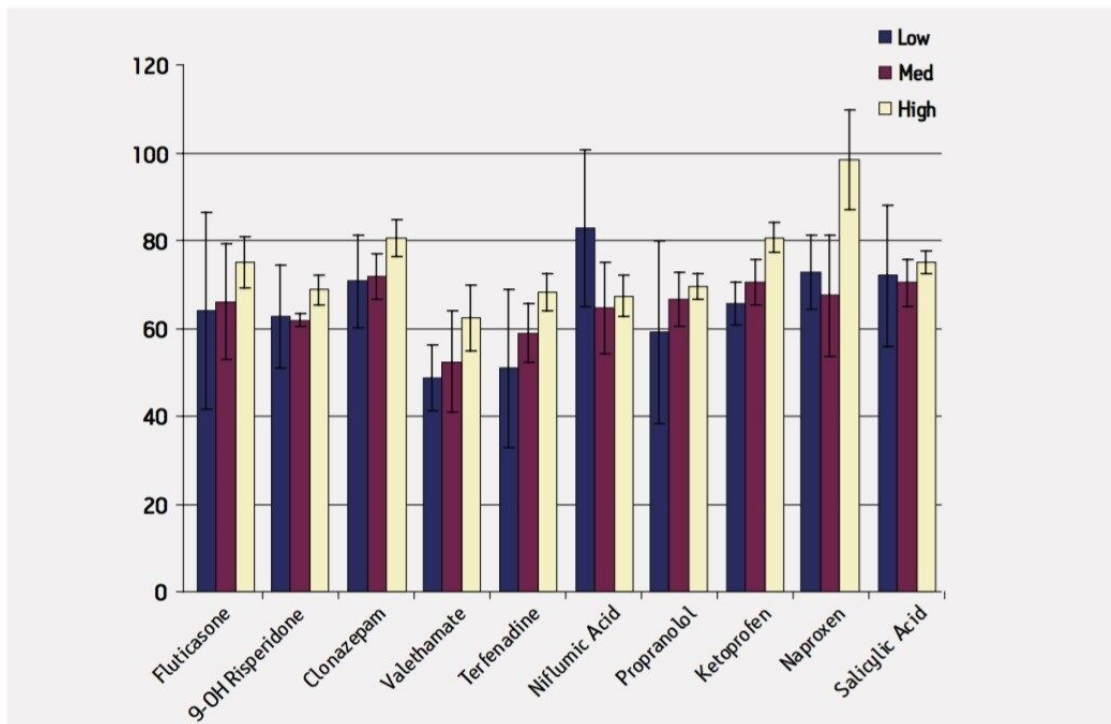
Protocol

- Load plasma onto Ostro plate
- Load extraction solvent
- Aspirate 3X using electronic pipette set at same volume as extraction solvent
- Pull through using vacuum set at 15" Hg for 5 minutes
- Dry down using nitrogen gas
- Reconstitute in same volume as plasma (50 μ L, 100 μ L, or 200 μ L)

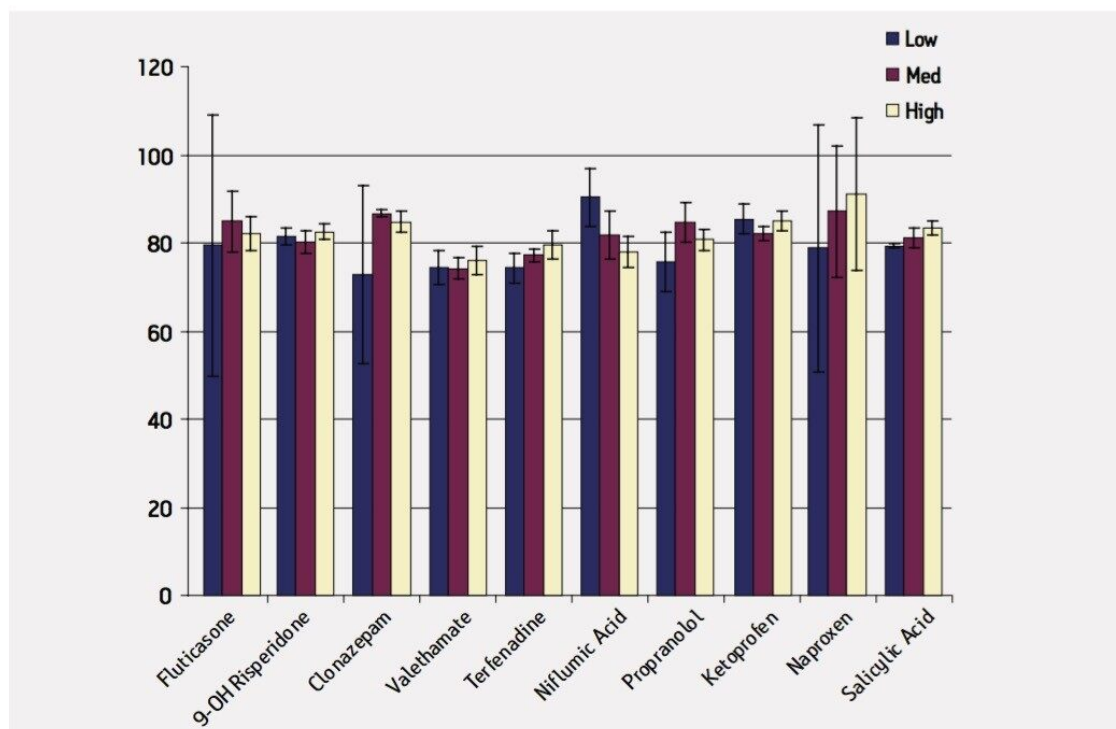
- Inject 8 μL into 10 μL loop

Results and Discussion

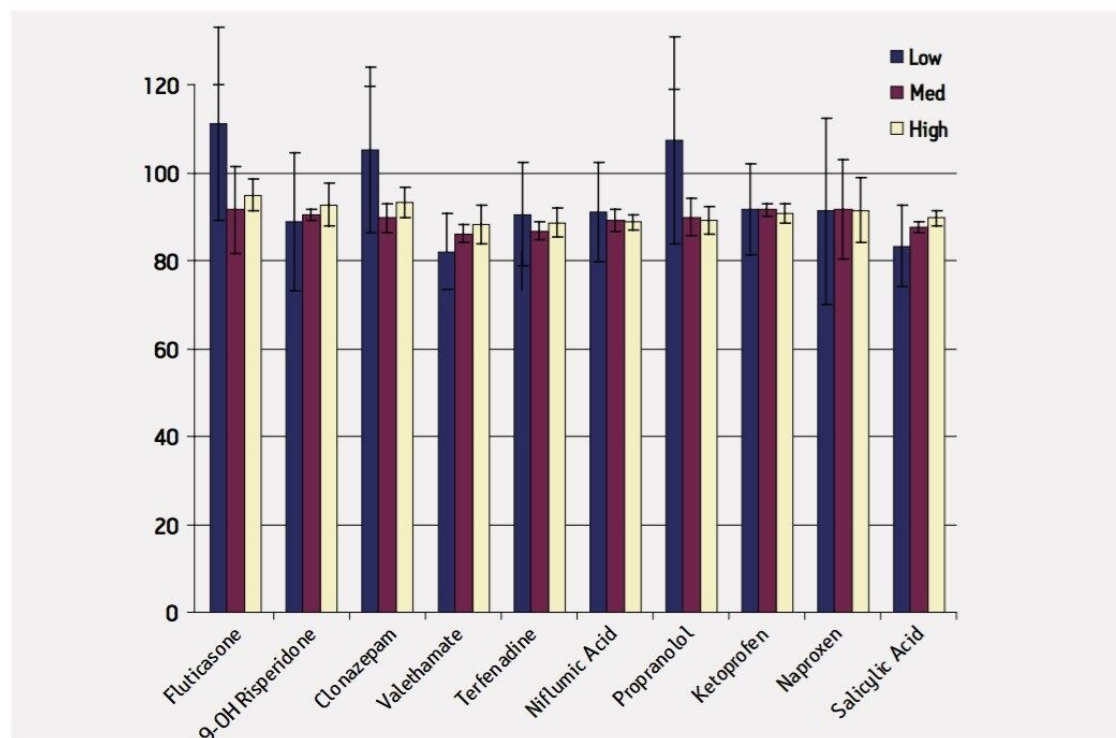
Analyte Recovery 50 μL Plasma Loaded: Rat Plasma



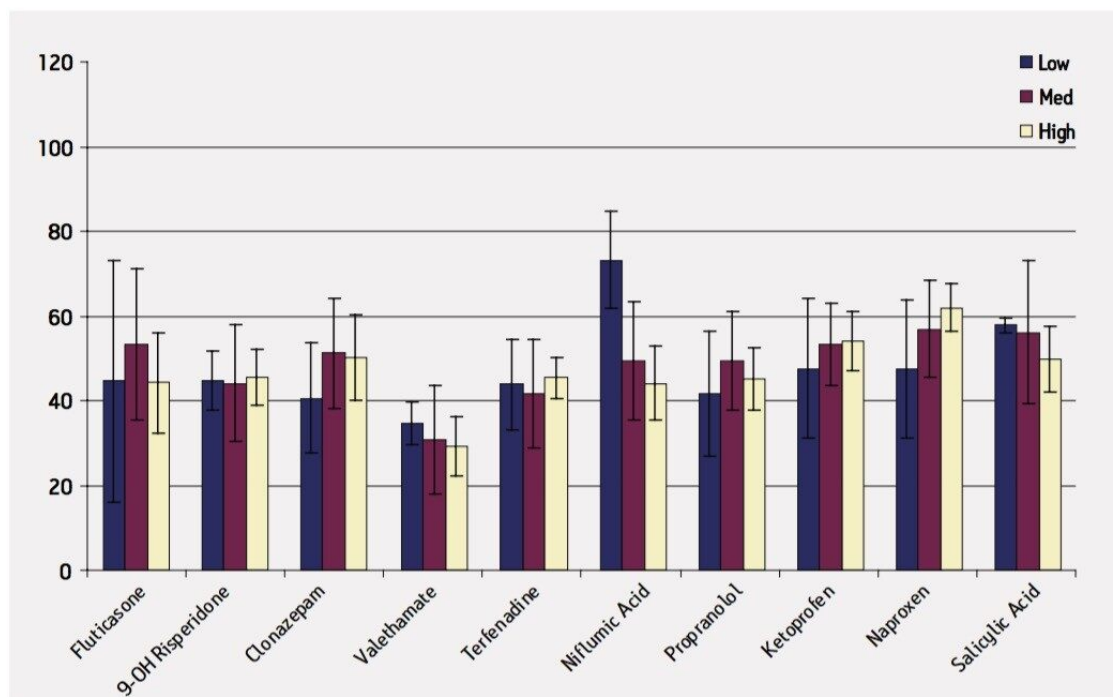
Analyte Recovery 100 μ L Plasma Loaded: Rat Plasma



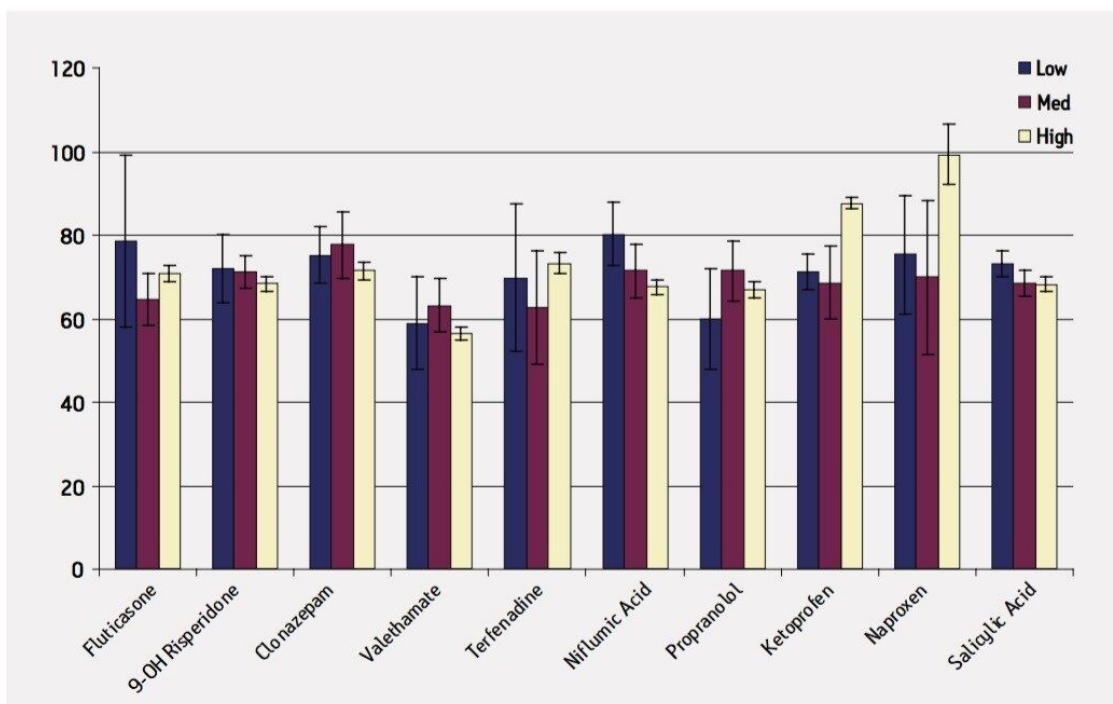
Analyte Recovery 200 μ L Plasma Loaded: Rat Plasma



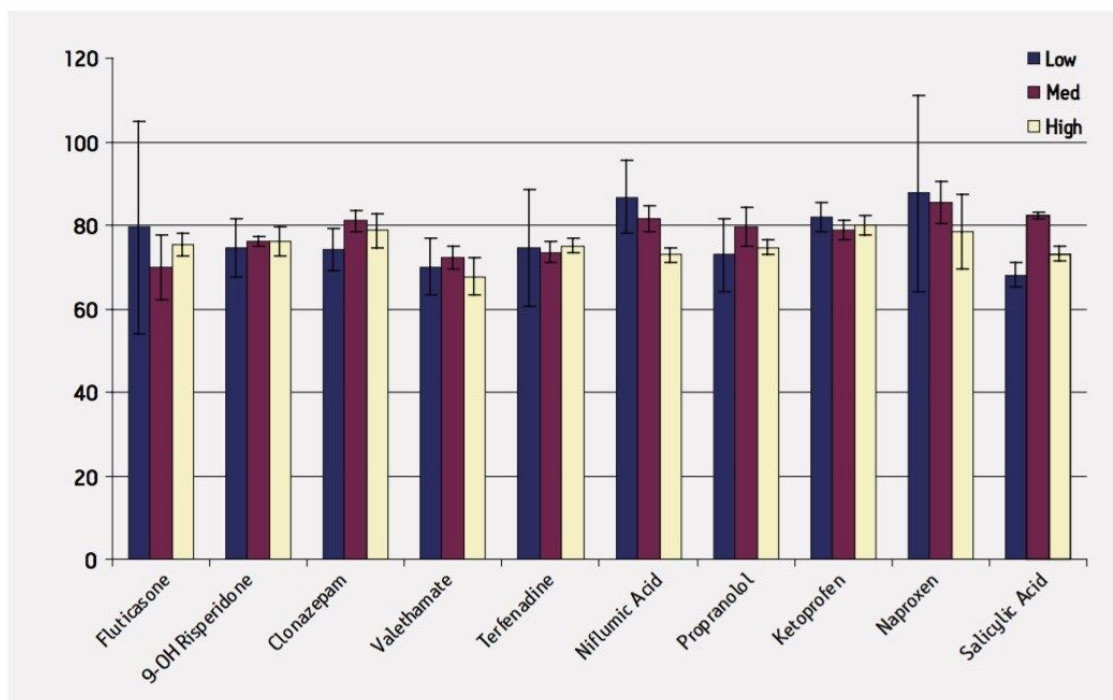
Analyte Recovery 50 μ L Plasma Loaded: Human Plasma*



Analyte Recovery 100 μ L Plasma Loaded: Human Plasma



Analyte Recovery 200 μ L Plasma Loaded: Human Plasma



** To improve recovery for small sample volumes, you may increase the ratio of organic solvent to plasma. Use of Waters Positive Pressure-96 Processor has also been shown to improve recovery.*

Conclusion

The Ostro plate demonstrates excellent recovery across a variety of conditions. In this evaluation, low, medium, and high concentrations of a range of compounds were examined and were consistently recovered using the device. This robustness was shown in both rat and human plasma.

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