

## SupelMIP™ SPE – Beta-receptors (beta-agonists and beta-blockers)

### Product Description:

Molecular imprinted polymers (MIPs) are a class of highly cross-linked polymer-based molecular recognition elements engineered to bind one target compound or a class of structurally related target compounds with high selectivity. Selectivity is introduced during MIP synthesis in which a template molecule, designed to mimic the analyte, guides the formation of specific cavities or imprints that are sterically and chemically complementary to the target analyte(s). It is therefore critical for analysts to use the methodology described below when using this phase. Conventional generic methodologies employed with conventional SPE chemistries (e.g., reversed-phase C18) will yield sub-optimal results when employed with this phase.

The following methods have been developed for the selective extraction of both beta-agonists and beta-blockers from human urine and waste water. The method is highly reproducible and offers extraction recoveries of 50-90% from 1 mL urine with minimal ion suppression when analyzing via LC-MS/MS conditions.

**Extraction Procedure: A flow rate of ~0.5 mL/min. is recommended. For analyte elution a flow rate of ~0.2 mL/min. is recommended.**

<b>Application Name:</b>	<b>Extraction of beta-agonists and beta-blockers from urine or waste water</b>
<b>Analyte:</b>	Atenolol, carazolol, clenbuterol, metoprolol, propranolol, ritodrine, salbutamol, terbutaline, timolol, tulobuterol
<b>Sample Matrix:</b>	Urine or waste water
<b>General Comments:</b>	The method is optimized for the simultaneous extraction of both beta-agonists and beta-blockers from urine and waste water. The protocol can be optimized for specific analytes. For more information regarding method optimization for specific beta-agonists and/or beta-blockers, please contact Supelco and/or MIP Technologies AB technical service.  Note that extraction recoveries, especially for more polar compounds such as salbutamol, terbutaline and atenolol may be reduced when loading sample volumes larger than recommended.
<b>SupelMIP SPE – Full beta-receptors:</b>	25 mg/10 mL (LRC) (Cat. No. 53223-U); or 25 mg/3 mL (Cat.No. 53224-U)
<b>Sample Pre-treatment:</b>	For particulate laden urine samples, centrifuge at 3000 g for 10 min. Dilute 1:1 with DI Water. Add deuterium, labeled internal standards as necessary. Adjust to pH 7. For particulate laden water samples, filter water sample through 1 µm filter paper.
<b>1. Condition/equilibrate cartridge with:</b>	<ul style="list-style-type: none"> <li>◆ 1 mL acetonitrile</li> <li>◆ 1 mL DI water</li> </ul>
<b>2. Load sample:</b> Note: recommended flow rate ~0.5 mL/min.	Apply up to 2 mL diluted urine sample or 10 mL waste water sample to the cartridge.
<b>3. Wash (interference elution):</b> Note: Apply gentle vacuum between each wash step.	<ul style="list-style-type: none"> <li>◆ 3 X 1 mL DI water (elution of salt and matrix interferences)</li> <li>◆ Apply 2 min. of full vacuum to dry the tube.</li> <li>◆ 1 mL acetonitrile (selective removal of hydrophobic interferences)</li> <li>◆ 1 mL 60% acetonitrile/40% DI Water (selective removal of hydrophilic interferences)</li> <li>◆ Apply 2 min. of full vacuum to dry the tube.</li> </ul>
<b>4. Analyte elution:</b> Note: recommended flow rate ~0.2 mL/min.	Elute beta-agonists and beta-blockers with 2 x 1 mL 1% formic acid in acetonitrile. Evaporate and reconstitute with LC mobile phase prior to analysis.
<b>Recommended Analytical Technique:</b>	LC-MS-MS

**Product Information:**

Description	Pkg Qty	Cat. No.
<b>SupelMIP SPE - Clenbuterol</b>		
25 mg/10 mL (LRC)	50	53201-U
<b>SupelMIP SPE - Beta-agonists (class selective)</b>		
25 mg/10 mL (LRC)	50	53202-U
25 mg/3 mL	50	53225-U
<b>SupelMIP SPE – NNAL</b>		
25 mg/10 mL (LRC)	50	53206-U
25 mg/3 mL	50	53203-U
<b>SupelMIP SPE - Riboflavin (Vitamin B2)</b>		
25 mg/10 mL (LRC)	50	53207-U
<b>SupelMIP SPE - Triazine 10</b>		
25 mg/10 mL (LRC)	50	53208-U
<b>SupelMIP SPE - Chloramphenicol</b>		
25 mg/10 mL (LRC)	50	53210-U
25 mg/3 mL	50	53209-U
<b>SupelMIP SPE - Beta-blocker (class selective)</b>		
25 mg/10 mL (LRC)	50	53218-U
25 mg/3 mL	50	53213-U
<b>SupelMIP SPE - TSNAs (NNK, NNN, NAB, NAT)</b>		
50 mg/10 mL (LRC)	50	53221-U
50 mg/3 mL	50	53222-U
<b>SupelMIP SPE - Full Beta-receptors (beta-blockers &amp; beta-agonists)</b>		
25 mg/10 mL (LRC)	50	53223-U
25 mg/3 mL	50	53224-U

*SupelMIP SPE developed by MIP Technologies AB*