

Note d'application

## Analysis of Beta Blockers Using XBridge Shield RP<sub>18</sub>

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Waters Corporation



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

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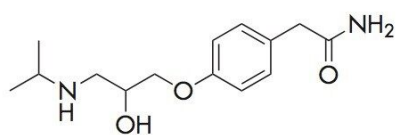
### Abstract

This application brief highlights the analysis of beta blockers using XBridge Shield RP<sub>18</sub> Columns.

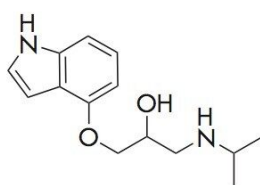
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## Introduction

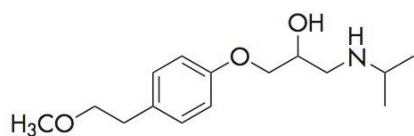
Beta blockers are a class of drugs used for the management of cardiac arrhythmias, congestive heart failure, angina, and cardioprotection after myocardial infarction. They were once commonly prescribed for hypertension, before being replaced by more effective drugs.



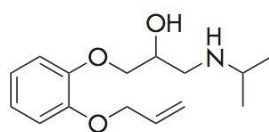
1. Atenolol



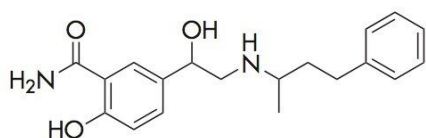
2. Pindolol



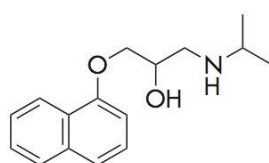
3. Metoprolol



5. Oxprenolol



6. Labetolol



7. Propranolol

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## Experimental

### Test Conditions

|                                   |   |
|-----------------------------------|---|
| Columns:                          | XBridge Shield RP <sub>18</sub> 4.6 X 100 mm, 3.5 µm p/n: 186003044 |
| Mobile phase A:                   | H <sub>2</sub> O  |
| Mobile phase B:                   | MeOH  |
| Mobile phase C:                   | 100 mM NH <sub>4</sub> HCO <sub>3</sub> , pH 9.0                    |
| Flow rate:                        | 1.0 mL/min  |
| Injection volume:                 | 10 µL   |
| Sample Concentration and Diluent: | 10 µg/mL in H <sub>2</sub> O  |
| Temp.:                            | 30 °C   |
| Sampling Rate:                    | 5 points /second  |
| Detection:                        | UV @ 280 nm   |
| Time Constant:                    | 1.0   |
| Needle Wash:                      | 5/95 MeOH/H <sub>2</sub> O  |
| Instrument:                       | Alliance 2695 with 2996 PDA   |

## Gradient

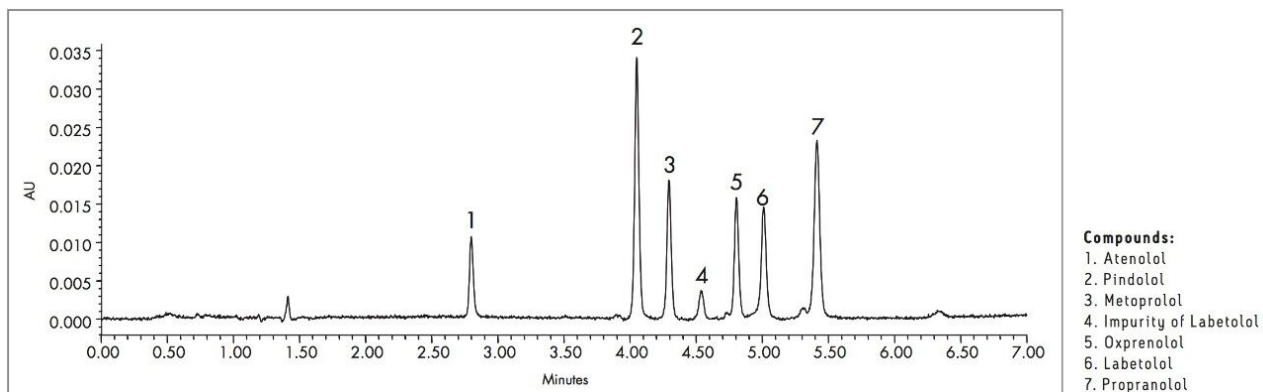
| Time(min) | %A | %B | %C |
|-----------|----|----|----|
| 0         | 85 | 5  | 10 |
| 3         | 55 | 35 | 10 |

| Time(min) | %A | %B | %C |
|-----------|----|----|----|
| 10        | 55 | 35 | 10 |
| 11        | 85 | 5  | 10 |
| 15        | 85 | 5  | 10 |

### System Suitability Parameters

|                    | Retention Time (min) | USP Tailing Factor | Width at 4.4% | USP Resolution |
|--------------------|----------------------|--------------------|---------------|----------------|
| <b>Atenolol</b>    | 2.799                | 1.14               | 0.070         |                |
| <b>Pindolol</b>    | 4.051                | 1.04               | 0.080         | 22.81          |
| <b>Metoprolol</b>  | 4.295                | 1.02               | 0.081         | 4.24           |
| <b>Oxprenolol</b>  | 4.805                | 1.07               | 0.079         | 8.77           |
| <b>Labetolol</b>   | 5.011                | 0.92               | 0.112         | 3.27           |
| <b>Propranolol</b> | 5.414                | 1.02               | 0.102         | 5.69           |

### Results and Discussion



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