Summary

Salicylates are a ubiquitous group of modified hydroxybenzoic acids that are frequently included in over-the-counter and prescription medications. The most commonly encountered and clinically prescribed synthetic member of the salicylate group is aspirin. Aspirin is rapidly metabolized to salicylic acid in the stomach, intestinal mucosa, blood, and liver. Salicylic acid is the NSAID active metabolite responsible for most of the anti-inflammatory, antipyretic, and analgesic effects.

Aspirin is typically eliminated in the urine as salicylic acid, salicyluric acid, and to a lesser extent the glucuronide forms at 3-5, 80, 15%, respectively. The pharacoynamics of salicylates are well understood at clinical dosage levels. Acetylsalicylic acid concentrations following a 600-900 mg dose typically do not exceed 10 mg/L in serum and decline rapidly with a half-life of approximately 15 minutes. Following ingestion of a single 1000 mg dose of aspirin, the average peak serum concentration of salicylic acid occurs within 1-2 hours in the serum at a range of 31-144 mg/L. Serum salicylate concentrations in excess of 300 mg/L are indicative of mild to moderate salicylate toxicity. Moderate to severe toxicity usually occurs in excess of 500 mg/L (1,2,3).

Due to the wide spread use of salicylates and the high potential for toxicity a cost effective rapid screening method such as an enzyme linked immunosorbent assay would be advantageous.

Product Features

- Ultra sensitive detection of salicylic acid
- Detects 4-aminosalicylic acid and diflunisal
- Validated for human urine, whole blood, and serum
- Single and bulk packaging available
- Compatibility with automated and semi-automated instruments

Summary of Protocol

- Add 10 µL samples and controls (see Sample Dilutions for alternative assay protocol)
- Add 100 µL ready-to-use enzyme conjugate solution
- 45 minute incubation at room temperature
- Wash plate 3 times
- Add 100 µL substrate TMB
- 30 minute incubation at room temperature
- Add 100 µL stop solution
- Measure OD at 450 nm

Sensitivity and Specificity

<table>
<thead>
<tr>
<th>Cross-Reactivity Profile</th>
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<tbody>
<tr>
<td>Drug</td>
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<tr>
<td>Salicylic acid</td>
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<tr>
<td>4-Aminosalicylic acid</td>
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<tr>
<td>Diflunisal</td>
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<tr>
<td>Gentisic acid</td>
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Sample Dilutions

The recommended minimum sample dilution is 1:5 for urine, whole blood, and serum. If preferred, an alternative sample dilution of 1:10 using 20 µL of samples and controls can be used.

Order Details

<table>
<thead>
<tr>
<th>Single Kit - 96 well package</th>
<th>Product No. 133619</th>
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<tbody>
<tr>
<td>Bulk Kit - 480 well package</td>
<td>Product No. 133615</td>
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</tbody>
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References