Overview

Useful For
Investigation of primary aldosteronism (e.g., adrenal adenoma/carcinoma and adrenal cortical hyperplasia) and secondary aldosteronism (renovascular disease, salt depletion, potassium loading, cardiac failure with ascites, pregnancy, Bartter syndrome)

Special Instructions
- Urine Preservatives-Collection and Transportation for 24-Hour Urine Specimens
- Renin-Aldosterone Studies

Method Name
Liquid Chromatography-Tandem Mass Spectrometry (LC-MS/MS)

NY State Available
Yes

Specimen

Specimen Type
Urine

Advisory Information
Advice on stimulation or suppression tests is available from Mayo Clinic's Division of Endocrinology and may be obtained by calling 800-533-1710.

Necessary Information
24-Hour volume is required.

Specimen Required

Patient Preparation: Spironolactone (Aldactone) should be discontinued for 4 to 6 weeks before testing.

Supplies: Urine tubes, 10-mL (T068)

Submission Container/Tube: Plastic, urine tube (T068)

Specimen Volume: 10 mL

Collection Instructions:
1. Collect urine for 24 hours.
2. Add 25 mL of 50% acetic acid as preservative at start of collection. Use 15 mL of 50% acetic acid for children <5 years old. This preservative is intended to achieve a pH of between approximately 2 and 4.

Additional Information: See Urine Preservatives-Collection and Transportation for 24-Hour Urine Specimens and Renin-Aldosterone Studies for more detailed instructions in Special Instructions.

Urine Preservative Collection Options
Test Definition: ALDU
Aldosterone, U

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Ambient</td>
<td>OK</td>
<td></td>
</tr>
<tr>
<td>Refrigerate</td>
<td>OK</td>
<td></td>
</tr>
<tr>
<td>Frozen</td>
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<tr>
<td>50% Acetic Acid</td>
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<td>Boric Acid</td>
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<tr>
<td>6M Hydrochloric Acid</td>
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<tr>
<td>6M Nitric Acid</td>
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<tr>
<td>Sodium Carbonate</td>
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<td></td>
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<tr>
<td>Thymol</td>
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<tr>
<td>Toluene</td>
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Specimen Minimum Volume
1 mL

Reject Due To
All specimens will be evaluated at Mayo Clinic Laboratories for test suitability.

Specimen Stability Information

<table>
<thead>
<tr>
<th>Specimen Type</th>
<th>Temperature</th>
<th>Time</th>
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<tbody>
<tr>
<td>Urine</td>
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<tr>
<td></td>
<td>Frozen</td>
<td>28 days</td>
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<td></td>
<td>Ambient</td>
<td>14 days</td>
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Clinical and Interpretive

Clinical Information
Aldosterone stimulates sodium transport across cell membranes, particularly in the distal renal tubule where sodium is exchanged for hydrogen and potassium. Secondarily, aldosterone is important in the maintenance of blood pressure and blood volume.

Aldosterone is the major mineralocorticoid and is produced by the adrenal cortex. The renin-angiotensin system is the primary regulator of the synthesis and secretion of aldosterone. Likewise, increased concentrations of potassium in the plasma may directly stimulate adrenal production of the hormone. Under physiologic conditions, pituitary adrenocorticotropic hormone can stimulate aldosterone secretion.

Urinary aldosterone levels are inversely correlated with urinary sodium excretion. Normal subjects will show a suppression of urinary aldosterone with adequate sodium repletion.

Primary hyperaldosteronism, which may be caused by aldosterone-secreting adrenal adenoma/carcinomas or adrenal cortical hyperplasia, is characterized by hypertension accompanied by increased aldosterone levels, hypernatremia, and hypokalemia. Secondary hyperaldosteronism (eg, in response to renovascular disease, salt
depletion, potassium loading, cardiac failure with ascites, pregnancy, Bartter’s syndrome) is characterized by increased aldosterone levels and increased plasma rennin activity.

**Reference Values**

0-30 days: 0.7-11.0 mcg/24 hours*

31 days-11 months: 0.7-22.0 mcg/24 hours*

> or =1 year: 2.0-20.0 mcg/24 hours


For SI unit Reference Values, see [https://www.mayocliniclabs.com/order-tests/si-unit-conversion.html](https://www.mayocliniclabs.com/order-tests/si-unit-conversion.html)

**Interpretation**

Under normal circumstances, if the 24-hour urinary sodium excretion is greater than 200 mEq, the urinary aldosterone excretion should be less than 10 mcg/24 hours.

Urinary aldosterone excretion greater than 12 mcg/24 hours as part of an aldosterone suppression test is consistent with hyperaldosteronism.

24-Hour urinary sodium excretion should exceed 200 mEq to document adequate sodium repletion.

See [Renin-Aldosterone Studies](https://www.mayocliniclabs.com/order-tests/si-unit-conversion.html) in Special Instructions.

**Note:** Advice on stimulation or suppression tests is available from Mayo Clinic's Division of Endocrinology and may be obtained by calling 800-533-1710.

**Cautions**

The plasma renin activity (PRA) cannot be interpreted if the patient is being treated with spironolactone (Aldactone). Spironolactone (Aldactone) should be discontinued for 4 to 6 weeks before testing.

Angiotensin converting enzyme (ACE) inhibitors have the potential to "falsely elevate" PRA. Therefore, in a patient treated with an ACE-inhibitor, the findings of a detectable PRA level or a low sodium aldosterone (SA)/PRA ratio do not exclude the diagnosis of primary aldosteronism. In addition, a strong predictor for primary aldosteronism is a PRA level undetectably low in a patient taking an ACE-inhibitor.

**Clinical Reference**


**Method Description**

Samples are spiked with deuterated internal standard and are hydrolyzed overnight with acid. Samples are then neutralized and extracted by solid phase extraction (SPE). The extracts are dried, reconstituted, and analyzed by LC-MS/MS. (Taylor RL, Singh RJ: Validation of liquid chromatography-tandem mass spectrometry method for analysis of...
Test Definition: ALDU
Aldosterone, U


PDF Report
No

Day(s) and Time(s) Test Performed
Tuesday, Thursday; 1 p.m.

Analytic Time
2 days

Maximum Laboratory Time
8 days

Specimen Retention Time
14 days

Performing Laboratory Location
Rochester

Fees and Codes

Fees
- Authorized users can sign in to Test Prices for detailed fee information.
- Clients without access to Test Prices can contact Customer Service 24 hours a day, seven days a week.
- Prospective clients should contact their Regional Manager. For assistance, contact Customer Service.

Test Classification
This test was developed and its performance characteristics determined by Mayo Clinic in a manner consistent with CLIA requirements. This test has not been cleared or approved by the U.S. Food and Drug Administration.

CPT Code Information
82088

LOINC® Information

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