

# Aldosterone ELISA

DRG



**DRG**

# DRG ELISA

# Aldosterone

## Intended use:

The DRG Aldosterone ELISA is an enzyme immunoassay for the quantitative *in vitro diagnostic* measurement of Aldosterone in serum and plasma.

## Summary and explanation of the test:

The steroid hormone Aldosterone is a potent mineral corticoid that is produced by the outer-section (zona glomerulosa) of the **adrenal cortex** in the **adrenal gland**. The synthesis and release are controlled by the renin-angiotensin system, plasma potassium concentration, the pituitary peptide ACTH, and by the blood pressure via pressure sensitive baroreceptors in the vessel walls of nearly all large arteries of the body. Aldosterone promotes the reabsorption of sodium and water from the distal tubules of the kidney into the blood, secretion of potassium into the urine, and increase of blood pressure by elevated circulating blood volume. Chronic overproduction and secretion of Aldosterone leads to hypertension.

## Clinical relevance

Measurement of Aldosterone levels in serum in conjunction with plasma renin levels can be used to differentiate between primary and secondary aldosteronism.

Condition	Serum Aldosterone	Plasma Renin
Primary Aldosteronism	High	Low
Secondary Aldosteronism	High	High

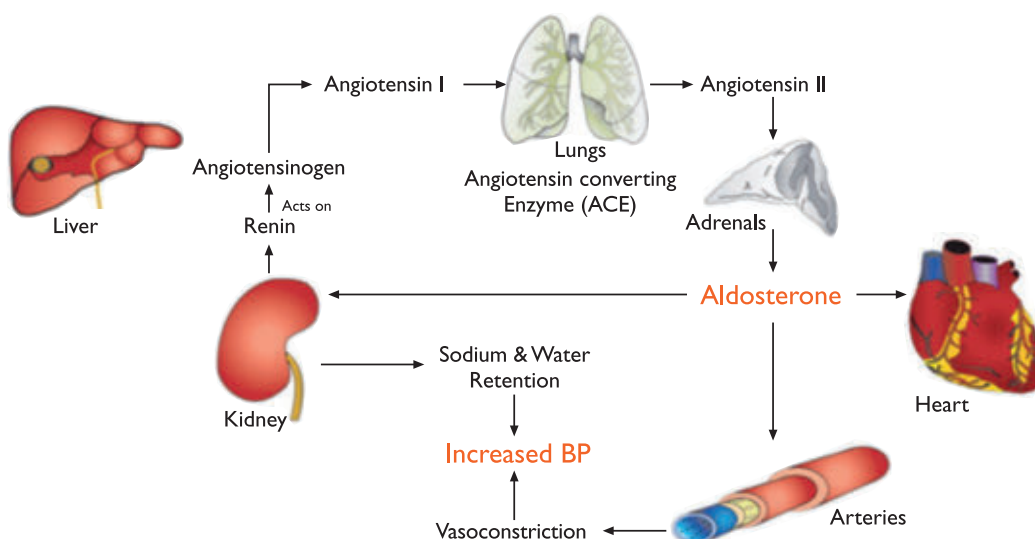
## Aldosterone assay characteristics:

- Assay Principle: Competitive ELISA
- Dynamic Range: 2.3 -2000 pg/mL of Aldosterone
- Total Assay Time: 2 hours
- Sample Volume: 25 µl of Serum or Plasma (EDTA, Citrate, Heparin)
- Mean Intra Assay Precision: 5.29
- Mean Inter Assay Precision: 10.3

The measurement of aldosterone in concert with selective suppression and stimulation tests can be used to further differentiate primary aldosteronism into two basic types:

- Primary aldosteronism caused by an adenoma of one or both adrenals
- Primary aldosteronism caused by adrenal hyperplasia.

This differentiation is vital in the treatment and management of the disease. The adrenal adenomas respond well to surgery whereas hyperplastic disease of the adrenals is generally better managed medically. In summary, the precise and accurate measurement of serum aldosterone by enzyme immunoassay can be an important adjunct to a diagnostic laboratory battery for the differential diagnosis of hypertensive disease.



# Aldosterone ELISA

## Principle of the test

The DRG Aldosterone ELISA Kit is a solid phase enzyme-linked immunosorbent assay (ELISA), based on the principle of competitive binding.

The microtiter wells are coated with a polyclonal antibody directed towards an antigenic site of the Aldosterone molecule. Endogenous Aldosterone of a patient samples competes with an Aldosterone-horse radish peroxidase conjugate for binding to the coated antibody. After incubation, the unbound conjugate is washed off.

After addition of the substrate solution, the intensity of colour developed is inversely proportional to the concentration of Aldosterone in the patient sample.

## Example of a Typical Standard Curve

Standard	Optical Units (450 nm)
Standard 0 (0 pg/mL)	2.05
Standard 1 (20 pg/mL)	1.92
Standard 2 (80 pg/mL)	1.64
Standard 3 (300 pg/mL)	1.14
Standard 4 (800 pg/mL)	0.77
Standard 5 (2000 pg/mL)	0.50

## Reproducibility

### Intra Assay

The within assay variability is shown

Sample	n	Mean (pg/mL)	CV (%)
1	20	33.9	8.0
2	20	134.0	3.5
3	20	237.3	4.4

### Inter Assay

The between assay variability is shown

Sample	n	Mean (pg/mL)	CV (%)
1	40	56.2	12.7
2	40	128.0	8.8
3	40	463.7	9.4

## Expected normal values

Adults upright position: 65-285 pg/mL

Adults supine position: 29-145 pg/mL

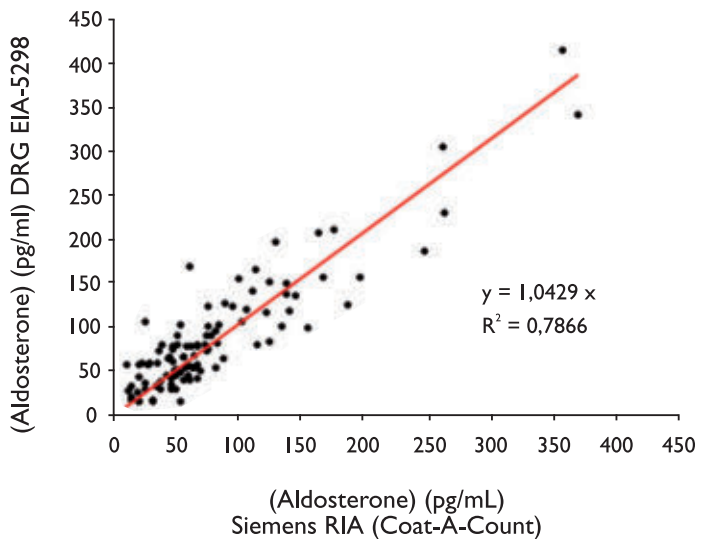
Newborns (1-12 month): 69-552 pg/mL

## Assay Dynamic Range

The dynamic range of the DRG Aldosterone ELISA is between 5.5-2000 pg/mL.

## Method Comparison Aldosterone

DRG Aldosterone EIA-5298 showed good correlation to Siemens RIA (COAT-A-COUNT) with correlation coefficient of 0.904 (n=107)



## Linearity

	Sample 1	Sample 2	Sample 3
Concentration (pg/mL)	535.02	704.70	610.58
Average Recovery (%)	108.5	105.7	106.5
Range of Recovery (%)	from 101.4 to 114.9	98.6 109.6	105.1 110.0

## Recovery

	Sample 1	Sample 2	Sample 3
Concentration (pg/mL)	36.4	74.5	497.0
Average Recovery (%)	100.4	104.4	100.9
Range of Recovery (%)	from 92.7 to 105.1	96.3 113.1	95.1 106.7

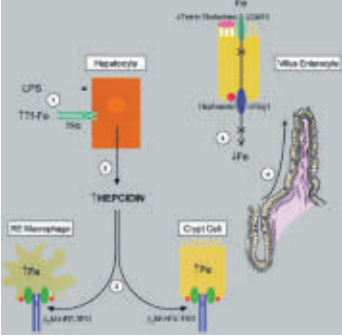
## Specificity

Aldosterone	100 %
3 beta, 5 alpha Tetrahydroaldosterone	17.2 %
3 beta, 5 beta Tetrahydroaldosterone	0.12 %
Prednisone	0.017 %
Cortisol, 11-Deoxycortisol,	
11-Deoxycorticosterone	< 0.003 %
Progesterone, Prednisone,	
17-OH Progesterone	< 0.003 %
Testosterone, Androstendione	< 0.003 %

## Sensitivity

The analytical sensitivity of the DRG active Aldosterone ELISA is 5.5 pg/mL.

# DRG ELISAS

<b>Tumormarker</b> CYFRA 21-I CA 72-4 CA 15-3 CA 125 CA 19-9 CEA TPS TPA PSA free PSA NSE Chromogranin	<b>Gyn. Endocrinology</b> Estradiol Progesterone 17a-OH Progesterone DHEA-S Testosterone DHEA Estrone Androstendione DHT SHBG DHEA LH, FSH, PRL	<b>Prenatal Supervision</b> PAPP-A Free $\beta$ HCG AFP Free Estriol HCG HPL PLGF	<b>Saliva Diagnostics</b> Cortisol Estradiol Testosterone DHEA Progesterone 17a-OH Progesterone
<b>Diabetes/Obesity</b> Insulin C-Peptid Proinsulin Leptin	<b>Iron Metabolism</b> Hepcidin Pro-Hepcidin		<b>Bone Metabolism</b> 25-OH Vitamin D Total
			<b>Hypertension</b> Renin Aldosteron

New

New

## ELISAS that perform

DRG develops and manufactures diagnostic ELISA test kits for use in clinical and research laboratories. The experience of our production and management team guarantees to provide high quality products, competitive prices and excellent customer service.

DRG works to DIN EN ISO 9001:2000, ISO 13485:2003 and ISO 13485:2003 under CMDCAS standard, certified by TÜV Rheinland Product Safety GmbH, an indication of our commitment to customer service, quality control and improved health care.

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DRG Instruments GmbH, Germany  
 Frauenbergstraße 18  
 D-35039 Marburg  
 Tel. +49 (0) 64 21/17 00 0,  
 Fax +49 (0) 64 21/17 00 50  
 Internet: www.drg-diagnostics.de  
 E-mail: drg@drg-diagnostics.de

Distributed by



DRG International Inc. USA  
 1167 U.S. Highway 22 East  
 Mountainside, N.J. 07092 USA  
 Phone: +1 (908) 233-2079  
 Fax +1 (908) 233-0758  
 Internet: www.drg-international.com  
 E-mail: corp@drg-international.com