

# ACE - liquid

UV enzymatic Method

4 x 25 ml

CL01-100

Other available kits:

**ACE** (lyophilized reagents) **CY02-36**

Available for quality control:

**ACE-CONTROL SERUM N + P** **7508**

Control serums in normal and pathological range

**ACE-CALIBRATOR** **7512**

For an accurate control of instrument calibration

**ACE-STANDARD** **7511**

Standard of ACE for Measuring of the Enzyme in Serum

## INTENDED USE

Kit for the quantitative determination of angiotensin converting enzyme (ACE) in serum and plasma.

## CLINICAL MEANING

The angiotensin-converting enzyme (ACE) is one of the main components of the renin-angiotensin system (RAS), which controls blood pressure by regulating the volume of bodily fluids. It also increases blood pressure through the constriction of blood vessels.

## PRINCIPLE

The angiotensin converting enzyme (ACE) catalyzes hydrolysis of furylacryloylphenylalanyl-glycylglycine (FA-Phe-Ala-Gly-Gly) substrate to furylacryloyl phenyl-alanine and glycylglycine.

Hydrolysis is related to an absorbance decrease valued at 340 nm and is proportional to enzymatic activity.

## SAMPLE

Serum or heparinized plasma.

ACE is a metalloprotein: it is mandatory to avoid using chelating agents (e.g EDTA) for the preparation of the sample.

STABILITY: 7 days at 2-8°C, 6 months at -20°C.

## REAGENTS

Package content	CL01-100
<b>REAGENT 1</b> (lyo) FA-Phe-Ala-Gly-Gly Buffer pH 8,4	<b>4 x 25 ml</b>

STABILITY: stored at 2-8°C and protected from light, reagents are stable up to the expiration date on the package.

## NECESSARY ITEMS – NOT PROVIDED

Usual laboratory equipment: UV/VIS Spectrophotometer with temperature control; automatic micropipettes; Optical glass cuvettes or, alternatively, disposable ones in optical polystyrene; saline solution.

## MANUAL ASSAY PROCEDURE

Wave length:	340 nm
Optical Path:	1 cm
Reading:	Against distilled water
Temperature:	37°C
Method:	Fixed time
Reaction time:	15 minutes
Sample/Reagent Ratio:	1/10

NOTE: spectrophotometric reading is made in a substrate spectrum zone where even a small wavelength change corresponds to a high variation of extinction coefficients.

For a proper use, carefully check the wavelength calibration and the instrument sensibility.

For this aim, use the product ACE CALIBRATOR.

Pipette into cuvette:

Reagent 1	1.0 mL
Sample	0.1 mL

Stir and incubate at 37°C. After 5 minutes read A1 absorbance and after exactly 15 minutes from the first reading, read A2 absorbance.

## CALCULATION

ACE Activity (in U/L): = (A1-A2) x 863

## NOTES

To calculate activity use the following formula:

$U/L = (A1 - A2) \times [(Vt \times 1000) / (\Delta\epsilon \times l \times Vs \times X t)]$

where:

A1: absorbance in the sample after 5 minute incubation;

A2: absorbance in the sample after 15 minute incubation from the first reading;

Vt : total volume (reagent +sample) in ml;

$\Delta\epsilon$  : variation of extinction coefficient at 340 nm;

l : optical path in cm;

Vs : sample volume in ml;

t : incubation time in minutes.

Under these test conditions the formula becomes:

$U/L = (A1 - A2) \times [(1,1 \times 1000) / (0,85 \times 1 \times 0,1 \times 15)] =$   
 $= (A1 - A2) \times 863$

$\Delta\epsilon$  was defined by research spectrophotometers. Using chemical

analysers,  $\Delta\epsilon$  might reach a different value with following

modification of U/L values in healthy and in ill people.

Use ACE CALIBRATOR to calculate  $\Delta\epsilon$  for the instrument used.

## REFERENCE VALUES

AVERAGE  $\pm$  SD

90.1 U/L  $\pm$  24.3 U/L

Reaction volumes can be proportionally varied without any change in calculation.

Each laboratory should define its own reference values for this method.

## QUALITY CONTROL – CALIBRATION

All Clinical Chemistry laboratories should implement a quality control program.

Control serums of human origin are available for this purpose on request:

**ACE CONTROL SERUM N+P** with normal and pathological value ranges

A Standard for an accurate control is also available:

**ACE STANDARD 2x1 ml**

## PERFORMANCE CHARACTERISTICS

### Sensitivity

The method can discriminate up to 2.5 U/L

**Linearity:** up to 250 u/l

For higher values, dilute the sample 1:1 with saline solution, repeat the test and multiply the result by 2.

Within run (n=10)	Average U/L	SD	CV%
Sample 1	99	1.08	1.08
Sample 2	191	1.76	0.92

Between run (n=20)	Average U/L	SD	CV%
Sample 1	99	2.33	2.35
Sample 2	196	3.29	1.68

### Correlation:

The kit shows a correlation coefficient equal to 0.989 in comparison to another kit available on the market.

### Interferences

It's not possible to verify interferences if:

lipids < 900 mg/dl.

Ascorbic acid <50 mg/dl

Avoid using chelating agents (EDTA) during the preparation of the sample.

## DISPOSAL

The product must be used for professional analysis only. The product must be disposed of according to national/international laws.

## WARNINGS AND PRECAUTIONS

The reagents may contain non-reactive components and various preservatives.

Contact with the skin and ingestion should be avoided. Use the normal precautions expected with correct behaviour in laboratory.

## REFERENCES

1. Harjanne A. Clin. Chem. 30 (1984) 901

## MANUFACTURER

FAR

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

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## KEY SYMBOLS

	In Vitro diagnostic medical device
	batch number
	catalogue number
	temperature limits
	use by
	caution
	consult accompanying documents