

**KAMIYA BIOMEDICAL COMPANY**

# Human CD14 quantification ELISA

**For the quantitative determination of soluble human CD14 in  
serum, plasma and culture medium**

**Cat. No. KT-1000**

**For Research Use Only. Not for use in diagnostic procedures.**

## Product Information

### Enzyme Immunoassay for Quantification of soluble human CD14 Cat. No. KT-1000

## INTENDED USE

The kit is a sandwich enzyme immunoassay for the *in vitro* quantitative measurement of natural and recombinant Human CD14 in serum, plasma and culture medium. For research use only. Not for use in diagnostic procedures.

## COMPONENTS

No.	Reagents	Quantity
1	Precoated modules, 96-well strip plate	1 plate
Vial 2	Detecting antibody (POD-labelled monoclonal antibody to human CD14) "Ready for use"	1 vial
Vial 3	Human-CD14-standard (recombinant human CD14, lyophilized)	1 vial
Vial 4	Reference serum (3.2 ± 0.6µg/ml, lyophilized)	1 vial
Vial 5	PBS (Phosphate buffered salt solution)	2 tab.
Vial 6	Dilution Buffer	1 vial
Vial 7	Tween 20	1 vial
Vial 8	Stopping solution "Ready for use"	1 vial
Vial 9	Substrate solution "Ready for use"	1 vial

## MATERIALS REQUIRED BUT NOT SUPPLIED

1. Orbital shaker.
2. Micro plate reader for measurement absorbance at 450/620nm.
3. Precision pipettes with disposable tips.
4. 10-1000 µl adjustable multiwell pipette.

## STORAGE

All the reagents should be kept according to the labels on vials. Short time store at 2-8°C. Long time storage of Human-CD14-standard and Reference serum at -20°C or -80°C.

The test kit is stable for some days at room temperature as well as 3 days at 37°C.

## PRINCIPLE

The Human CD14 kit has been developed for the quantitative measurement of natural and recombinant soluble human CD14 (sCD14) in serum, plasma and culture medium.

The sCD14 kit is a solid phase sandwich Enzyme-Linked-Immuno-Sorbent-Assay (ELISA). A mixture of two monoclonal antibodies specific for sCD14 is coated to modules. In the first step the precoated modules will be incubated with the antigen (standard or sample). During this incubation, human CD14 is captured by solid bound antibody. Unbound material present in the sample will be removed by washing.

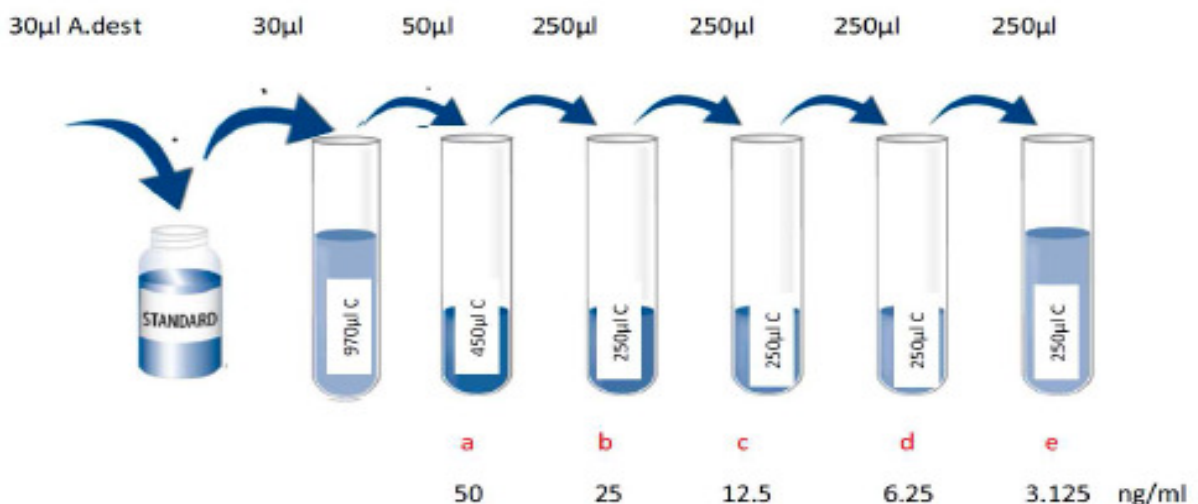
Then a POD-labelled monoclonal antibody specific for sCD14 is incubated. Revelation step includes TMB as chromogen. The enzyme reaction is stopped by the addition of 0.25 mol sulphuric acid and the absorption is measured at 450 nm with a spectrophotometer. A standard curve will be provided by plotting the absorptions versus the corresponding concentrations of the known standards. The humanCD14 concentration of samples with unknown concentrations, running parallel with the standards, can be determined from the standard curve.

## REAGENT PREPARATION (Enough for 96 wells)

- A Wash buffer:** PBS/ Tween 0.05%:  
Dissolve 1 tablet phosphate buffered saline (PBS, **vial 5**) in 200 ml distilled water and add 100µl Tween 20 (**vial 7**). Prepared wash buffer is stable for 4 weeks at refrigerator.
- B PBS:** Dilute 1 tablet of **vial 5** in 200 ml distilled water.
- C Dilution buffer:** Dissolve content of **vial 6** with 50 ml PBS (Buffer **B**) and add 50µl Tween 20 from **vial 7**. This buffer is stable for 1-2 weeks at 4 °C. Attention! Use buffer for assay at room temperature.
- D Reference serum:** For reconstitutions of lyophilized reference serum add 10 µl distilled water and than dilute with 1990µl Dilution buffer (**C**). This represents dilution 1:200. For test use 100 µl /well. Reference serum contained  $3.2 \pm 0.6\mu\text{g/ml}$  soluble CD14.
- E CD14-standard:** Firstly pipette 30 µl distilled water to the **vial 3** for reconstitution and secondly pipette the whole reconstituted content of **vial 3** in a new vial (**vial 0**) together with 970µl Dilution buffer (**C**) and mix carefully. Now use 50µl of **vial 0** and add 450µl Dilution buffer (**C**).This represents = **vial a** with CD14 concentration of 50ng/ml.

For standard curve prepare and use **vial a–e** Prepare just before use. **Store the standard at - 20 °C.**

No.	CD14-Standard dilution µl	Dilution buffer ( <b>C</b> )	Concentration ng/ml
<b>Vial a</b>			50
<b>Vial b</b>	250 µl of <b>vial a</b>	250 µl	25
<b>Vial c</b>	250 µl of <b>vial b</b>	250 µl	12.5
<b>Vial d</b>	250 µl of <b>vial c</b>	250 µl	6.25
<b>Vial e</b>	250 µl of <b>vial d</b>	250 µl	3.125





**Note:** Mix vials 2, 8 and 9 (“Ready for use”) carefully before use !

## SAMPLE PREPARATION

Kamiya Biomedical Company is only responsible for the kit itself, but not for the samples consumed during the assay. The user should calculate the possible amount of the samples used in the whole test. Please reserve sufficient samples in advance.

Serum, plasma and other CD14 containing solutions are suitable for use in the test. With coagulation inhibitor citrate the CD14 content is lower than with EDTA or heparin. Samples containing a visible precipitate must be clarified prior to use in the assay. Lipemic and haemolysed probes are not possible.

Samples should be frozen at -20°C for a long term storage.

Depending on the concentration of sCD14 in the samples, these have to be diluted with dilution buffer. For normal serum samples a dilution of 1:200 is recommended.

## ASSAY CHARACTERISTIC

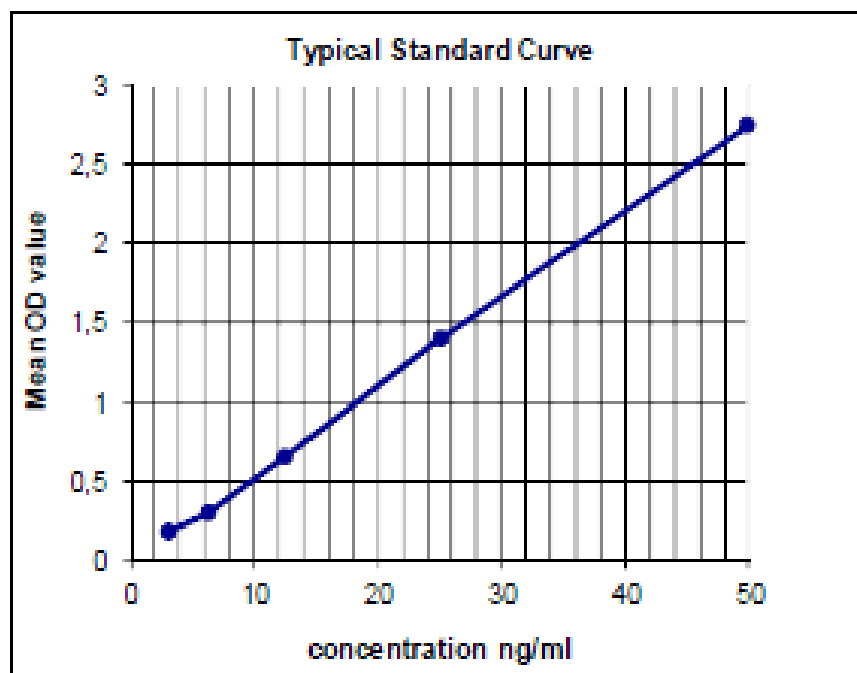
**Normal CD14 range** in healthy blood donors: (1.79-3.68 µg/ml) n= 10

**Interassay** variation coefficient: 9.8 till 11.8 depending of concentration

**Intraassay** variation coefficient: 4.9%, n=10 serum samples

**Effective range:** 3 -50 ng/ml

**Cross reaction:** unknown



## ASSAY PROCEDURE

Let all reagents reach room temperature and mix thoroughly

- 1. Samples**  
Add 100 µl of standards (50, 25, 12.5, 6.25, 3.12 ng/ml= vials a-e) or diluted samples in duplicate into the corresponding wells and incubate for one hour at room temperature and shaking.
- 2.** 3 x washing with Wash Buffer (A).
- 3. Detecting antibody**  
Add 100 µl detecting antibody (vial 2) to each well and incubate at room temperature for 1 hour at shaker.
- 4.** 3 x washing with Wash Buffer (A).
- 5. Substrate**  
Add 100 µl Substrate solution (vial 9) to each well. Incubate  $13 \pm 1$  min at room temperature without shaking in the dark.
- 6. Stopping**  
Add 100 µl stopping solution (vial 8) to each well. Tape plate gently to mix
- 7.** Read absorbance of wells at 450 nm (reference wave length 620)

## CALCULATION THE CD14 CONCENTRATION

Calculate the mean of optical density (OD) of standard duplicates, reference serum and the samples. Design a standard curve by plotting the OD means of the standards (a-e) (y-axis) and the CD14 concentration (x-axis). Calculate the CD14- concentration from the mean OD of the samples from the standard curve and multiply with dilution factor.

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