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β -Estradiol competitive ELISA kit datasheet

For the quantitative detection of β-Estradiol concentrations in serum, plasma and urine.

general information

Catalogue Number	KE30010
Product Name	β-Estradiol ELISA Kit
Species cross-reactivity	β-Estradiol
Range (calibration Range)	46.88-3000 pg/mL
Tested applications	Competitive ELISA

database links

CAS	50-28-2

kit components & storage

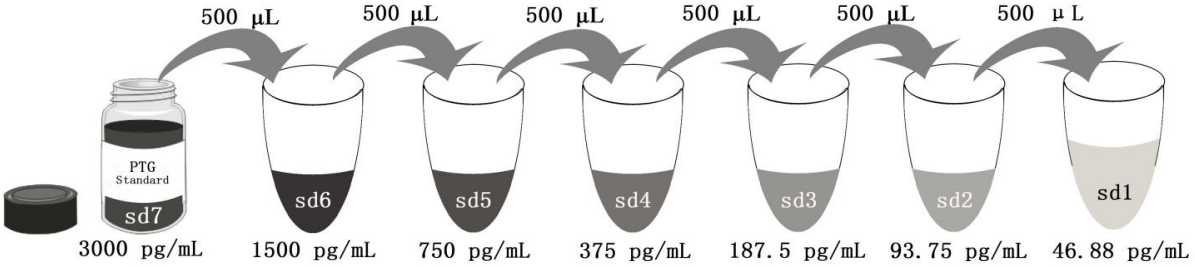
Microplate - antibody coated 96-well Microplate (8 well × 12 strips)	1 plate	Store at 2-8°C for six months
Standard - 6000 pg/bottle; lyophilized*	2 bottles	Store at 2-8°C for six months
Detection Antibody, biotinylated (100×) - 60 µL/vial	1 vial	Store at 2-8°C for six months
Streptavidin-horseradish peroxidase (HRP) (100×)- 120 µL/vial	1 vial	Store at 2-8°C for six months
Sample Diluent PT 1-em - 30 mL/bottle	1 bottle	Store at 2-8°C for six months
Detection Diluent - 30 mL/bottle	1 bottle	Store at 2-8°C for six months
Wash Buffer Concentrate (20X) - 30 mL/bottle	1 bottle	Store at 2-8°C for six months
Tetramethylbenzidine Substrate (TMB) - 12 mL/bottle	1 bottle	Store at 2-8°C for six months
Stop Solution - 12 mL/bottle	1 bottle	Store at 2-8°C for six months
Plate Cover Seals	4 pieces	

NB: Do not use the kit after the expiration date.

Sample Diluent PT 1-em is for standard,female serum, female plasma, maternity plasma, male urine and female urine samples.

Detection Diluent is for Detection antibody.

*Add **2 mL** Sample Diluent PT 1-em in standard. This reconstitution gives a stock solution of 3000 pg/mL.



Add # µL of Standard diluted in the previous step	—	500 µL	500 µL	500 µL	500 µL	500 µL	500 µL
# µL of Sample Diluent PT 1-em	**2000 µL**	500 µL	500 µL	500 µL	500 µL	500 µL	500 µL
	"sd7"	"sd6"	"sd5"	"sd4"	"sd3"	"sd2"	"sd1"

Product description

KE30010 is a vitro competitive binding enzyme-linked immunosorbent assay（Competitive ELISA）. The β-Estradiol ELISA kit is to be used to detect and quantify protein levels of vitro human β-Estradiol. The assay recognizes human β-Estradiol. A 96-well plate has been precoated with β-Estradiol antigen. Samples and the antibody-Bio conjugate are added to the wells, where β-Estradiol in the sample competes with the β-Estradiol antigen immobilized on the microplate for binding with the antibody-Bio. For signal development, Streptavidin-HRP is added, followed by Tetramethyl-benzidine (TMB) reagent. The reaction is terminated by addition of Stop Solution which stops the color development and produces a color change from blue to yellow. The intensity of signal is inversely proportional to the amount of β-Estradioll in the sample and the intensity is measured at 450 nm with the correction wavelength set at 630 nm.

Background

β-Estradiol is the primary and most potent estrogen sex hormone in the human body, particularly in non-pregnant females of reproductive age. It is a steroid hormone essential for the development and regulation of the female reproductive system, secondary sexual characteristics, and numerous other physiological processes.

Sample preparation

1:2-1:50 dilution is recommended for female serum and plasma samples. 1:2 or 1:4 dilution is recommended for urine samples.

Safety notes

This product is sold for lab research and development use ONLY and not for use in humans or animals.
Avoid any skin and eye contact with Stop Solution and TMB. In case of contact, wash thoroughly with water.

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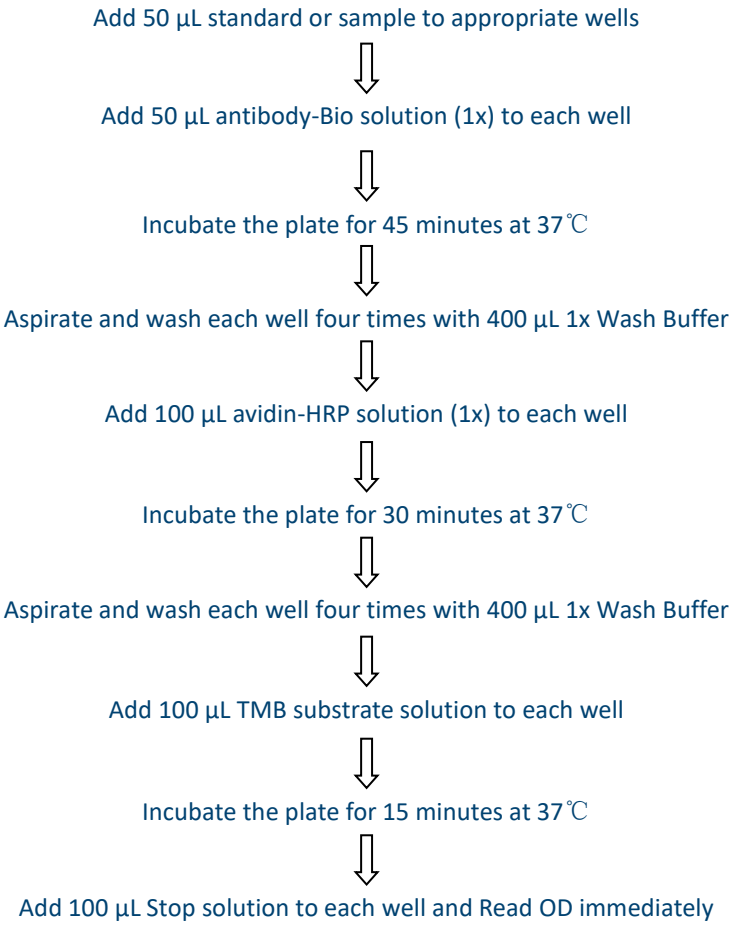
Assay procedure summary



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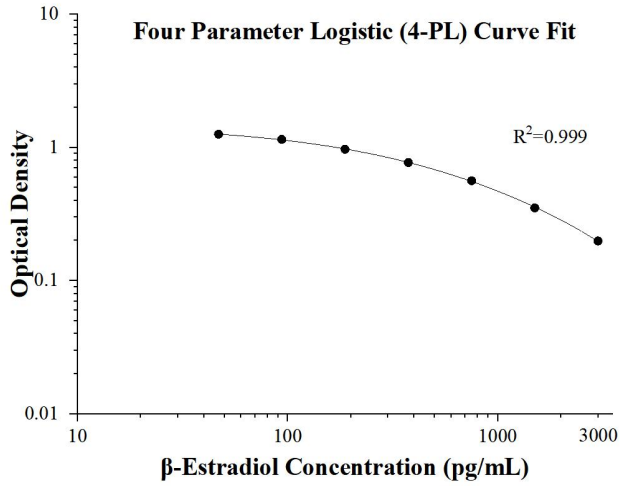
Typical data

These standard curves are provided for demonstration only. A standard curve should be generated for each set of samples assayed.



(pg/mL)	O.D	Average
0	1.4705	1.4515
	1.4324	
46.88	1.2875	1.2584
	1.2293	
93.75	1.171	1.1485
	1.1259	
187.5	0.9731	0.9702
	0.9673	
375	0.7718	0.7719
	0.7720	
750	0.5566	0.5633
	0.5699	
1500	0.3482	0.3518
	0.3554	
3000	0.1983	0.1989
	0.1995	

Precision

Intra-assay Precision (Precision within an assay) Three samples of known concentration were tested 20 times on one plate to assess intra-assay precision.

Inter-assay Precision (Precision between assays) Three samples of known concentration were tested in 24 separate assays to assess inter-assay precision.

	Intra-assay Precision			Inter-assay Precision		
Sample	1	2	3	1	2	3
n	8	8	8	16	16	16
Mean (pg/mL)	1,550.9	394.1	191.2	1,539.4	391.1	176.6
SD	68.9	34.4	16.0	72.7	36.5	24.9
CV%	4.4	8.7	8.4	4.7	9.3	14.1

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Recovery

The recovery of β-Estradiol spiked to three different levels in four samples throughout the range of the assay in various matrices was evaluated.

Sample Type		Average% of Expected	Range (%)
Female serum	1:2	100	84-128
	1:4	94	87-104
Female Urine	1:8	94	93-95
	1:16	104	93-124

Sample values

Human serum/Plasma/Urine - Human serum, plasma and urine samples were evaluated for the presence of β-Estradiol in this assay.

Sample Type	Mean (pg/mL)	Range (pg/mL)
Female serum (n=8)	129.6	62.1-280.9
Female plasma (n=8)	194.4	75.1-473.2
Maternity plasma (n=13)	4,569.3	210.6-30,849.6
Female Urine (n=6)	3,250.0	389.8-6,904.2
Male Urine (n=6)	1,234.4	210.6-2,236.3

Sensitivity

The minimum detectable dose of β-Estradiol is 0.3 pg/mL. This was determined by adding two standard deviations to the concentration corresponding to the mean O.D. of 20 zero standard replicates.

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Linearity

To assess the linearity of the assay, samples were diluted with the appropriate **Sample Diluent** to produce samples with values within the dynamic range of the assay.
(The maternity plasma was initially diluted 1:8.)

		Maternity plasma	Female Urine
1:2	Average% of Expected	100	100
	Range (%)	-	-
1:4	Average% of Expected	109	79
	Range (%)	101-117	73-84
1:8	Average% of Expected	107	93
	Range (%)	106-107	88-98
1:16	Average% of Expected	111	97
	Range (%)	109-112	91-103

Specificity

This assay recognizes natural and recombinant β-Estradiol.

The following factors prepared at 50 ng/mL were assayed and exhibited no cross-reactivity or interference.

Recombinant human:

Estrone

α-Estradiol

Estriol

Hydrocortisol

Testosterone

Progesterone

References

1. Geraci, Annalisa et al. Frontiers in endocrinology vol. 12 682012. 2021.

2. Wellington, Keri, and Caroline M Perry. Drugs vol. 62,3 (2002): 491-504.