EliKine™ Human Carcino-embryonic antigen (CEA) ELISA Kit

Cat #: KTE6038 Size: 48 T/96 T

	Human Carcino-embryonic antigen (CEA) ELISA Kit		
REF	**Cat #:** KTE6038	LOT	**Lot #:** Refer to product label
	Detection range: 0.625 ng/mL-40 ng/mL		**Sensitivity:** 0.313 ng/mL
	Precision: Intra-assay Precision: The CV (%) < 10%. Inter-assay Precision :The CV (%) < 12%		**Recovery:** The recovery ranged from 98% to 116% with an overall mean recovery of 106%.
	Specificity: EliKine™ Human Carcino-embryonic antigen (CEA) ELISA Kit has high sensitivity and excellent specificity for detection of Human Carcino-embryonic antigen (CEA). No significant cross-reactivity or interference between Human Carcino-embryonic antigen (CEA) and analogues was observed.		
	Applicable samples: Serum, Plasma, Cell culture supernatants		
	Storage: Stored at 4℃ for 12 months, protected from light		

Assay Principle

Carcino-embryonic antigen (CEA) is a glycoprotein produced by colorectal cancer tissue. It is widely distributed in endoembryo-derived cancer of the digestive system, in the digestive canal tissues of normal embryos, and in a small amount in normal human serum. Carcinoembryonic antigen (CEA) is a broad-spectrum tumor marker, which can reflect the existence of a variety of tumors. It is a good tumor marker for the judgment of efficacy, disease development, monitoring and prognosis of colorectal cancer, breast cancer and lung cancer, but its specificity and sensitivity are not high, and its role in early diagnosis of tumors is not obvious. EliKine™ Human Carcino-embryonic antigen (CEA) ELISA Kit employs a double antibody sandwich method to quantitate Human CEA in samples. An antibody specific for Human CEA has been pre-coated onto a microplate. Standards and samples are pipetted into the wells and any Human CEA present is bound by the immobilized antibody. After removing any unbound substances, a HRP-conjugated antibody specific for Human CEA is added to the wells. After washing, remove any unbound HRP-conjugated antibody reagent, adding HRP Substrate (TMB), TMB turns blue under the catalysis of HRP, and turns yellow after adding stop solution. Measure the OD value with a microplate reader at 450 nm wavelength. The Human carcino-embryonic antigen (CEA) concentration is proportional to the OD450 nm value.

Materials Supplied and Storage Conditions

Kit components	Size		Storage conditions
	48 T	96 T	
Human CEA Microplate	48 wells	96 wells	4℃
Human CEA Standard (lyophilized)	1	2	4℃
Sample Diluent (5×)	3.5 mL	7 mL	4℃

Assay Buffer (5×)	3.5 mL	7 mL	4℃
HRP-conjugated Human CEA Detect Antibody (100×)	60 µL	120 µL	4℃
HRP Substrate (TMB)	5 mL	10 mL	4℃, protected from light
Stop Solution	5 mL	10 mL	4℃
Wash Buffer (20×)	25 mL	50 mL	4℃
Plate Covers	1	2	RT

Materials Required but Not Supplied

- Microplate reader capable of measuring absorbance at 450 nm
- Multi channel pipette or automated microplate washer
- Incubator, refrigerated centrifuge
- Precision pipettes, disposable pipette tips
- Deionized water

Reagent Preparation

1×Sample Diluent: Sample Diluent (5×) equilibrate to room temperature and dilute with deionized water 1:5 to obtain the 1× Sample Diluent before use. Mix gently to avoid foaming. Store at 4℃. This solution is stable for 30 days. If your samples need to be diluted, 1×Sample Diluent is used for dilution of standard, serum and plasma samples.

1×Assay Buffer: Assay Buffer (5×) equilibrate to room temperature and dilute with deionized water 1:5 to obtain the 1×Assay Buffer before use. Mix gently to avoid foaming. Store at 4℃. This solution is stable for 30 days. 1×Assay Buffer is used for dilution of HRP-conjugated Human CEA Detect Antibody (100×).

Human CEA Standard: Reconstitute the Human CEA Standard in 1 mL of 1×Sample Diluent for a concentration of 40 ng/mL. Allow the standard to sit for a minimum of 15 min with gentle shake prior to making dilutions.

1×HRP-conjugated Human CEA Detect Antibody: Mix well prior to making dilutions. Make a 1:100 dilution of the concentrated detect antibody solution with 1×Assay buffer in a clean plastic tube as needed according to the Standards and samples. 1×Human CEA Detect Antibody should be used within 30 min.

HRP Substrate (TMB): Ready to use as supplied. Equilibrate to room temperature before use. Store at 4℃, protected from light.

Stop Solution: Ready to use as supplied. Equilibrate to room temperature before use. Store at 4℃

1×Wash Buffer: Equilibrate to room temperature and dilute with deionized water 1:20 to obtain the 1×Wash Buffer before use. Mix gently to avoid foaming. Store at room temperature. Please note that 1×Wash Buffer is stable for 30 days.

Standard curve setting: Dilute 40 ng/mL Standard with 1×Sample Diluent to 40, 20, 10, 5, 2.5, 1.25, 0.625 and 0 ng/mL of Human CEA Standard just as below.

Num.	Volume of Standard	Volume of 1×Sample Diluent (µL)	The Concentration of Standard（ng/mL）
Std.1	1,000 µL of 40 ng/mL	0	40
Std.2	500 µL of Std.1 (20 ng/mL)	500	20
Std.3	500 µL of Std.2 (10 ng/mL)	500	10
Std.4	500 µL of Std.3 (5 ng/mL)	500	5
Std.5	500 µL of Std.4 (2.5 ng/mL)	500	2.5
Std.6	500 µL of Std.5 (1.25 ng/mL)	500	1.25
Std.7	500 µL of Std.6 (0.625 ng/mL)	500	0.625
Std.8	0	500	0

Note：Always prepare a fresh set of standards per use.

Sample Preparation

1. Cell culture supernatants: Remove particulates by centrifugation and assay immediately or aliquot and store samples at -20℃. Avoid repeated freeze-thaw cycles.
2. Serum: Use a serum separator tube and allow samples to clot for 30 min at room temperature before centrifugation for 15 min at 1,000 g. Remove serum and assay immediately or aliquot and store samples at -20℃. Avoid repeated freeze-thaw cycles.
3. Plasma: Collect plasma using EDTA, heparin, or citrate as an anticoagulant. Centrifuge for 15 min at 1,000 g within 30 min of collection. Assay immediately or aliquot and store samples at -20℃. Avoid repeated freeze-thaw cycles.

Note: Do not use grossly hemolyzed or lipemic specimens. If samples are to be used within 24 h, they may be stored at 2 to 8℃. Avoid repeated freeze-thaw cycles. Prior to assay, the frozen sample should be brought to room temperature slowly and mixed gently.

Assay Procedure

1. Remove excess microplate strips from the plate frame, return them to the foil pouch containing the desiccant pack, and reseal. The strips used for testing are equilibrated to room temperature before use.
2. Add 100 µL of diluted standard or sample per well. It is recommended that all Standards and Samples be added in duplicate to the microplate. Cover with the plate cover provided. Incubate for 2 h at room temperature.
3. Remove liquid in each well and wash, repeating the process for a total of three washes. Wash by filling each well with 1×Wash Buffer (250 µL) using a multi channel pipette or automated microplate washer, and let it stand for 1-2 min, complete removal of liquid at each step is essential to good performance. After the last wash, remove any remaining 1×Wash Buffer by invert the plate and blot it against clean paper towels.
4. Add 100 µL of diluted 1×HRP-conjugated Human CEA Detect Antibody to each well. Cover with the plate cover provided. Incubate for 1 h at room temperature.
5. Repeat the wash process for five times as in step 3.
6. Add 100 µL of HRP Substrate (TMB) to each well. Cover the plate and incubate for 15 min at room temperature. Protect from light.
7. Add 50 µL of Stop solution to each well. Stop Solution should be added to the plate in the same order as TMB. The color in the wells should change from blue to yellow. If the color in the wells is green or if the color change does not appear uniform, gently tap the plate to ensure thorough mixing.
8. Determine the optical density of each well within 30 min, using a microplate reader set to 450 nm.

Data Analysis

1. Average the duplicate readings for each standard and sample and subtract the average zero standard (Std.8) optical density (O.D.).
2. Drawing of standard curve: With the standard solution concentration as the x-axis and the mean absorbance for each standard as the y-axis, draw the standard curve. A computer software can be used to create a standard curve.

Note: If samples have been diluted, the concentration read from the standard curve must be multiplied by the dilution factor.

Typical Data

Typical Standard curve（$R^2 \geqslant 0.99$）

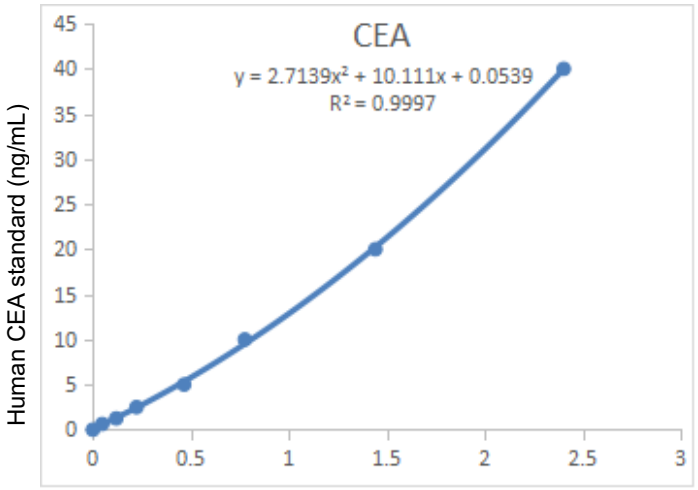

Figure. Standard Curve of Human Carcino-embryonic antigen (CEA) in 96-well plate assay, data provided for demonstration purposes only. A new standard Curve must be generated for each assay.

Precautions

1. If Sample Diluent (5×) and Assay Buffer (5×) appears to turn yellow or a small amount of precipitation, etc., it is caused by the serum contained in the reagent. Please centrifuge to remove the precipitate, which will not affect normal use.
2. Do not mix or substitute reagents with those from other lots or sources.
3. To avoid cross-contamination, change pipette tips between additions of each standard level, between sample additions, and between reagent additions. Also, use separate reservoirs for each reagent.
4. To ensure accurate results, proper adhesion of plate covers during incubation steps is necessary.
5. Stop Solution has certain Corrosive. Please take protective measures when operating.

FAQ

Problem	Cause	Suggested Solution
Poor standard curve	Inaccurate Pipetting	Check pipettes
	Improper standard dilution	Prior to opening, briefly spin the stock standard tube and dissolve the powder thoroughly by gentle mixing
Low signal	Incubation times too short	Ensure sufficient incubation times; increase to 2 or 3 h standard/ sample incubation
	Inadequate reagent volumes or improper dilution	Check pipettes and ensure correct preparation
	Incubation times with TMB too short	Ensure sufficient incubation time until blue color develops prior addition of Stop solution
High background /Large CV	Plate is insufficiently Washed	Review the manual for proper wash. If using a plate washer, check that all ports are unobstructed
	Contaminated Wash Buffer	Make fresh Wash Buffer
Low sensitivity	Improper storage of the ELISA kit	Store your reconstituted standards at -20℃ (avoid repeated freeze-thaw cycles), all other assay components 4℃. Keep TMB Development Solution protected from light
	Stop solution	Stop solution should be added to each well before measurement
Diluent Precipitation	Precipitation or condensation in the diluent	The diluent is slowly heated to 37℃, the precipitate can be reconstituted

Recommended Products

Catalog No.	Product Name
KTE6004	EliKine™ Human CRP ELISA Kit
KTE6032	EliKine™ Human TNF-α ELISA Kit
KTE6035	EliKine™ Human PD-1 ELISA Kit
KTE6036	EliKine™ Human PD-L1 ELISA Kit
KTE6037	EliKine™ Human Alpha Fetoprotein (AFP) ELISA Kit

Disclaimer

The reagent is only used in the field of scientific research, not suitable for clinical diagnosis or other purposes.