Human sCD134 (OX-40) ELISA Kit

PromoKine

Instruction Manual

Cat.No. PK-EL-68166

Contents

1. Intended Use

The sCD134/OX-40 ELISA is an enzyme-linked immunosorbent assay for quantitative detection of human sCD134/OX-40 in cell culture supernatants, human serum, plasma or other body fluids. **The sCD134 ELISA is for research use only. Not for use in diagnostic or therapeutic procedures.**

2. Summary

OX40 (CD134) is a member of the tumor necrosis (TNF) receptor superfamily and known to be an important costimulatory molecule expressed on activated T-cells (5, 25). Interaction of OX40 with its ligand, OX40L, is thought to be important in T cell activation through T cell/antigen-presenting cell (APC) interaction (30). Ligation of OX40 induces clonal expansion and survival of CD4 cells during primary responses, and results in the accumulation of greater numbers of memory cells with time (9).

Further OX40 has been shown to be involved in the T cell adhesion to endothelium (1, 12). Induction of CD134 by Interleukin-4 has been suggested, which thus acts in a TH-2 type cytokine environment (10, 13, 20). OX40 expression is found besides T cells in a small subpopulation of macrophages, in Langerhans cells (22), and in B-cells in non Hodgkin's lymphoma (6). OX40 promotes Bcl-xL and Bcl-2 expression thus being a critical regulator of antigen-driven T cell survival (19). OX40 signaling renders adult T cell leukemia cells resistant to Fas-induced apoptosis (16).

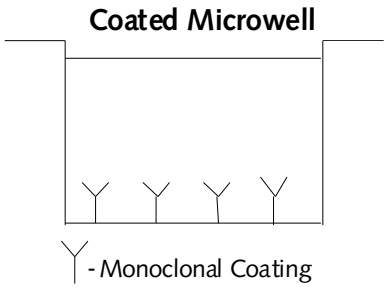
It has been described as a molecule involved in regulating immunological tolerance, which represents a major obstacle in developing effective immunotherapy against tumors (2, 3, 26).

A soluble isoform of OX40 has been described (28). Measurement of this molecule may have diagnostic value in polymyositis and granulomatous myopathy (27), in T cell lymphoma (14) and lymphomatoid papulosis (8), in proliferative lupus nephritis (1), in rheumatoid arthritis (7, 30), in HIV infection (24), in viral infections of the lung (11, 21), in the regulation of graft-versus-host disease (4, 15), in myocarditis and dilated cardiomyopathy (23). The crucial role of OX40 in development of autoimmune diseases has further been shown (17, 18, 29).

3. Principles of the Test

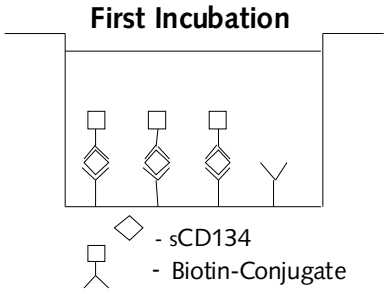
An anti-sCD134 monoclonal coating antibody is adsorbed onto microwells.

Figure 1



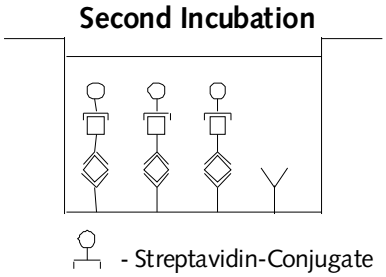
sCD134 present in the sample or standard binds to antibodies adsorbed to the microwells; a biotin-conjugated monoclonal anti-sCD134 antibody is added and binds to sCD134 captured by the first antibody.

Figure 2



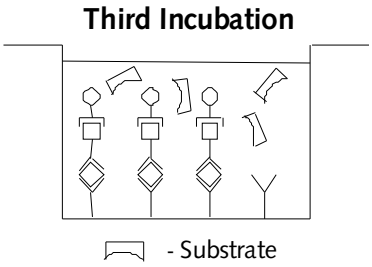
Following incubation unbound biotin-conjugated anti-sCD134 is removed during a wash step. Streptavidin-HRP is added and binds to the biotin conjugated anti-sCD134.

Figure 3



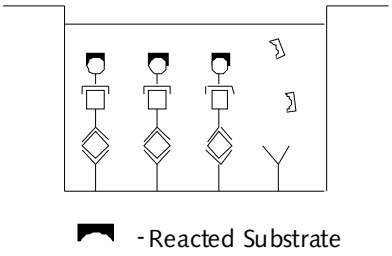
Following incubation unbound Streptavidin-HRP is removed during a wash step, and substrate solution reactive with HRP is added to the wells.

Figure 4



A coloured product is formed in proportion to the amount of sCD134 present in the sample. The reaction is terminated by addition of acid and absorbance is measured at 450 nm. A standard curve is prepared from 7 human sCD134 standard dilutions and the human sCD134 sample concentration determined.

Figure 5



4. Reagents Provided

1 aluminium pouch with **a Microwell Plate coated with Monoclonal Antibody** to human sCD134

1 vial (70 µl) **Biotin-Conjugate** anti-sCD134 monoclonal antibody

1 vial (150 µl) **Streptavidin-HRP**

2 vials **sCD134 Standard**, lyophilized, 10 ng/ml upon reconstitution

1 bottle (50 ml) **Wash Buffer Concentrate** 20x (PBS with 1% Tween 20)

1 vial (5 ml) **Assay Buffer Concentrate** 20x (PBS with 1% Tween 20 and 10 % BSA)

1 bottle (12 ml) **Sample Diluent**

1 vial (15 ml) **Substrate Solution** (tetramethyl-benzidine)

1 vial (15 ml) **Stop Solution** (1 M phosphoric acid)

4 adhesive **Plate Covers/Films**

Reagent Labels

5. Storage Instructions

Store kit reagents between 2°C and 8°C. Immediately after use remaining reagents should be returned to cold storage (2°C to 8°C). Expiry of the kit and reagents is stated on labels.

The expiry of the kit components can only be guaranteed if the components are stored properly, and if, in case of repeated use of one component, the reagent is not contaminated by the first handling.

6. Specimen Collection

Cell culture supernatant and serum were tested with this assay. Other biological samples might be suitable for use in the assay. Remove serum from the clot as soon as possible after clotting.

Pay attention to a possible **"Hook Effect"** due to high sample concentrations (see chapter 11).

Samples containing a visible precipitate must be clarified prior to use in the assay. Do not use grossly hemolyzed or lipemic specimens.

Samples should be aliquoted and must be stored frozen at -20°C to avoid loss of bioactive human sCD134/OX40. If samples are to be run within 24 hours, they may be stored at 2° to 8°C (for sample stability refer to 13.5).

Avoid repeated freeze-thaw cycles. Prior to assay, the frozen sample should be brought to room temperature slowly and mixed gently.

7. Materials Required But Not Provided

- 5 ml and 10 ml graduated pipettes
- 10µl to 1,000µl adjustable single channel micropipettes with disposable tips
- 50µl to 300µl adjustable multichannel micropipette with disposable tips
- Multichannel micropipette reservoir
- Beakers, flasks, cylinders necessary for preparation of reagents
- Device for delivery of wash solution (multichannel wash bottle or automatic wash system)
- Microwell strip reader capable of reading at 450 nm (620 nm as optional reference wave length)
- Glass-distilled or deionized water
- Statistical calculator with program to perform linear regression analysis.

8. Precautions for Use

- All chemicals should be considered as potentially hazardous. We therefore recommend that this product is handled only by those persons who have been trained in laboratory techniques and that it is used in accordance with the principles of good laboratory practice. Wear suitable protective clothing such as laboratory overalls, safety glasses and gloves. Care should be taken to avoid contact with skin or eyes. In the case of contact with skin or eyes wash immediately with water. See material safety data sheet(s) and/or safety statements(s) for specific advice.
- Reagents are intended for research use only and are not for use in diagnostic or therapeutic procedures.
- Do not mix or substitute reagents with those from other lots or other sources.
- Do not use kit reagents beyond expiration date on label.
- Do not expose kit reagents to strong light during storage or incubation.
- Do not pipette by mouth.
- Do not eat or smoke in areas where kit reagents or samples are handled.
- Avoid contact of skin or mucous membranes with kit reagents or specimens.
- Rubber or disposable latex gloves should be worn while handling kit reagents or specimens.
- Avoid contact of substrate solutions with oxidizing agents and metal.
- Avoid splashing or generation of aerosols.
- In order to avoid microbial contamination or cross-contamination of reagents or specimens which may invalidate the test use disposable pipette tips and/or pipettes.

- Use clean, dedicated reagent trays for dispensing the conjugate and substrate reagents.
- Exposure to acids will inactivate the conjugate.
- Glass-distilled water or deionized water must be used for reagent preparation.
- Substrate solutions must be at room temperature prior to use.
- Decontaminate and dispose specimens and all potentially contaminated materials as if they could contain infectious agents. The preferred method of decontamination is autoclaving for a minimum of 1 hour at 121.5°C.
- Liquid wastes not containing acid and neutralized waste may be mixed with sodium hypochlorite in volumes such that the final mixture contains 1.0 % sodium hypochlorite. Allow 30 minutes for effective decontamination. Liquid waste containing acid must be neutralized prior to the addition of sodium hypochlorite.

9. Preparation of Reagents

9.1. Wash Buffer

Buffer Concentrates should be brought to room temperature and should be diluted before starting the test procedure. If crystals have formed in the **Buffer Concentrates**, warm them gently until they have completely dissolved.

Pour entire contents (50 ml) of the **Wash Buffer Concentrate** into a clean 1,000 ml graduated cylinder. Bring final volume to 1,000 ml with glass-distilled or deionized water. Mix gently to avoid foaming.

Transfer to a clean wash bottle and store at 2°C to 25°C. Please note that the Wash Buffer is stable for 30 days. Wash Buffer may be prepared as needed according to the following table:

Numberof Strips	Wash Buffer Concentrate (ml)	Distilled Water (ml)
1 - 6	25	475
1 - 12	50	950

9.2. Assay Buffer

Pour the entire contents (5 ml) of the **Assay Buffer Concentrate** (20x) into a clean 100 ml graduated cylinder. Bring to final volume of 100 ml with distilled water. Mix gently to avoid foaming.
Store at 2° to 8°C. Please note that the Assay Buffer (1x) is stable for 30 days.
Assay Buffer (1x) may also be prepared as needed according to the following table:

Numberof Strips	Assay BufferConcentrate (ml)	Distilled Water(ml)
1 - 6	2.5	47.5
1 - 12	5.0	95.0

9.3. Preparation of Biotin-Conjugate

Please note that the Biotin-Conjugate should be used within 30 minutes after dilution.

Make a 1:100 dilution of the concentrated **Biotin-Conjugate** solution with Assay Buffer (1x) in a clean plastic tube as needed according to the following table:

Number of Strips	Biotin-Conjugate (ml)	Assay Buffer (ml)
1 - 6	0.03	2.97
1 - 12	0.06	5.94

9.4. Preparation of Streptavidin-HRP

Please note that the Streptavidin-HRP should be used within 30 minutes after dilution.

Make a 1:100 dilution of the concentrated **Streptavidin-HRP** solution with Assay Buffer (1x) in a clean plastic tube as needed according to the following table:

Number of Strips	Streptavidin-HRP (ml)	Assay Buffer (ml)
1 - 6	0.06	5.94
1 - 12	0.120	11.88

9.5. Preparation of sCD134/OX40 Standard

Reconstitute **human sCD134/OX-40 standard** by addition of distilled water. Reconstitution volume is stated on the label of the standard vial. Swirl or mix gently to insure complete and homogeneous solubilisation (concentration of reconstituted standard = 10 ng/ml).

Allow the standard to reconstitute for 10-30 minutes. Mix well prior to making dilutions. After usage remaining standard cannot be stored and has to be discarded.

Standard dilutions can be prepared directly on the microwell plate (see 10.c) or alternatively in tubes (see 9.5.1).

9.5. External Standard Dilution

Label 7 tubes, one for each standard point: S1, S2, S3, S4, S5, S6, S7

Then prepare 1:2 serial dilutions for the standard curve as follows:

Pipette 225 µl of Sample Diluent into each tube.

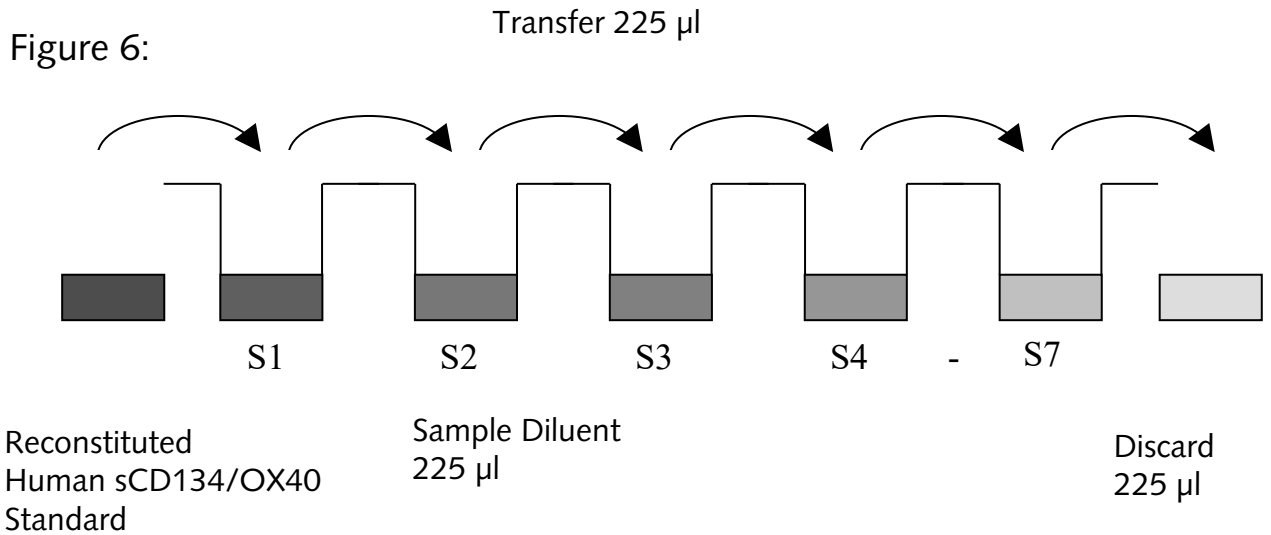
Pipette 225 µl of reconstituted standard (concentration of standard = 10 ng/ml) into the first tube, labelled S1, and mix (concentration of standard 1 = 5 ng/ml).

Pipette 225 µl of this dilution into the second tube, labelled S2, and mix thoroughly before the next transfer.

Repeat serial dilutions 5 more times thus creating the points of the standard curve (see Figure 6 below).

Sample Diluent serves as blank.

Figure 6:



10. Test Protocol

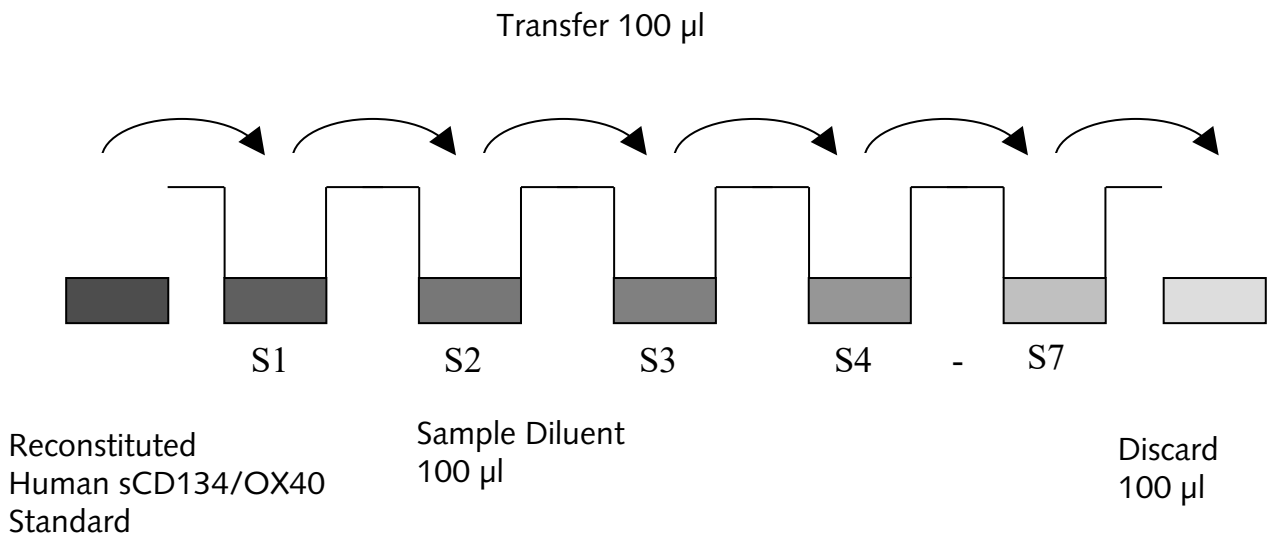
a. Mix all reagents thoroughly without foaming before use. Determine the number of Microwell Strips required to test the desired number of samples plus appropriate number of wells needed for running blanks and standards. Each sample, standard, blank and optional control sample should be assayed in duplicate. Remove extra **Microwell Strips coated with Monoclonal Antibody** to human sCD134 from holder and store in foil bag with the desiccant provided at 2-8°C sealed tightly.

b. Wash the microwell strips twice with approximately 400 µl **Wash Buffer** per well with thorough aspiration of microwell contents between washes. Allow the Wash Buffer to sit in the wells for about **10 – 15 seconds** before aspiration. Take care not to scratch the surface of the microwells. Take care not to scratch the surface of the microwells.

   After the last wash, empty wells and tap microwell strips on absorbent pad or paper towel to remove excess Wash Buffer. Use the microwell strips immediately after washing or place upside down on a wet absorbent paper for not longer than 15 minutes. **Do not allow wells to dry**.

c. **Standard dilution on the microwell plate** (alternatively the standard dilution can be prepared in tubes - see 9.5.1): Add 100 µl of Sample Diluent in duplicate to all **standard wells**. Pipette 100 µl of prepared **standard** (see Preparation of Standard 9.5, concentration = 10,000 pg/ml) in duplicate into well A1 and A2 (see Table 1). Mix the contents of wells A1 and A2 by repeated aspiration and ejection (concentration of standard 1, S1 = 5,000 pg/ml), and transfer 100 µl to wells B1 and B2, respectively (see Figure 7). Take care not to scratch the inner surface of the microwells. Continue this procedure 5 times, creating two rows of human sCD134/OX40 standard dilutions ranging from 5,000 to 78 pg/ml. Discard 100 µl of the contents from the last microwells (G1, G2) used.

Figure 7: Preparation of sCD134 standard dilutions.



In case of an **external standard dilution** (see 9.5.1), pipette 100 µl of these standard dilutions (S1 - S7) in the standard wells according to Table 1.

Table 1.

Table depicting an example of the arrangement of blanks, standards and samples in the microwell strips:

	1	2	3	4
A	Standard 1 (5000 pg/ml)	Standard 1 (5000 pg/ml)	Sample 1	Sample 1
B	Standard 2 (2500 pg/ml)	Standard 2 (2500 pg/ml)	Sample 2	Sample 2
C	Standard 3 (1250 pg/ml)	Standard 3 (1250 pg/ml)	Sample 3	Sample 3
D	Standard 4 (625 pg/ml)	Standard 4 (625 pg/ml)	Sample 4	Sample 4
E	Standard 5 (313 pg/ml)	Standard 5 (313 pg/ml)	Sample 5	Sample 5
F	Standard 6 (156 pg/ml)	Standard 6 (156 pg/ml)	Sample 6	Sample 6
G	Standard 7 (78 pg/ml)	Standard 7 (78 pg/ml)	Sample 7	Sample 7
H	Blank	Blank	Sample 8	Sample 8

d. Add 100 µl of **Sample Diluent** in duplicate to the blank wells.

e. Add 75 µl of **Sample Diluent**, in duplicate, to the sample wells.

f. Add 25 µl of each **Sample**, in duplicate, to the sample wells.

g. Prepare **Biotin-Conjugate** (refer to preparation of reagents).

h. Add 50 µl of **Biotin-Conjugate** to all wells, including the blank wells.

i. Cover with an adhesive film and incubate at room temperature (18° to 25°C) for 2 hours, if available on a microplate shaker set at 400 rpm.

j. Prepare **Streptavidin-HRP** (refer to preparation of reagents).

k. Remove adhesive film and empty wells. **Wash** microwell strips 3 times according to point b. of the test protocol. Proceed immediately to the next step.

l. Add 100 µl of diluted **Streptavidin-HRP** to all wells, including the blank wells.

m. Cover with an adhesive film and incubate at room temperature (18° to 25°C) for 1 hour, if available on a microplate shaker set at 400 rpm.

n. Remove adhesive film and empty wells. **Wash** microwell strips 3 times according to point b. of the test protocol. Proceed immediately to the next step.

o. Pipette 100 µl of **TMB Substrate Solution** to all wells, including the blank wells.

p. Incubate the microwell strips at room temperature **(18°C to 25°C)** for about 10 minutes. Avoid direct exposure to intense light.

The colour development on the plate should be monitored and the substrate reaction stopped (see next point of this protocol) before positive wells are no longer properly recordable. Determination of the ideal time period for colour development has to be done individually for each assay.

It is recommended to add the stop solution when the highest standard has developed a dark blue colour. Alternatively, the colour development can be monitored by the ELISA reader at 620 nm. The substrate reaction should be stopped as soon as Standard 1 has reached an OD of 0.9–0.95.

q. Stop the enzyme reaction by quickly pipetting 100 µl of **Stop Solution** into each well, including the blank wells. It is important that the Stop Solution is spread quickly and uniformly throughout the microwells to completely inactivate the enzyme. Results must be read immediately after the Stop Solution is added or within one hour if the microwell strips are stored at 2-8°C in the dark.

r. Read absorbance of each microwell on a spectro-photometer using 450 nm as the primary wave length (optionally 620 nm as the reference wave length; 610 nm to 650 nm is acceptable). Blank the plate reader according to the manufacturer's instructions by using the blank wells. Determine the absorbance of both, the samples and the sCD134 standards.

Note: In case of incubation without shaking the obtained O.D. values may be lower than indicated below. Nevertheless, the results are still valid.

11. Calculation of Results

- Calculate the average absorbance values for each set of duplicate standards and samples. Duplicates should be within 20 per cent of the mean.
- Create a standard curve by plotting the mean absorbance for each standard concentration on the ordinate against the sCD134 concentration on the abscissa. Draw a best fit curve through the points of the graph (a 5-parameter curve fit is recommended).
- To determine the concentration of circulating sCD134 for each sample, first find the mean absorbance value on the ordinate and extend a horizontal line to the standard curve. At the point of intersection, extend a vertical line to the abscissa and read the corresponding sCD134 concentration.
- **If instructions in this protocol have been followed samples have been diluted 1:4 (25 µl sample + 75 µl Sample Diluent), the concentration read from the standard curve must be multiplied by the dilution factor (x 4).**

  Calculation of samples with a concentration exceeding standard 1 may result in incorrect, low human sCD134/OX40 levels (Hook Effect). Such samples require further external predilution according to expected human sCD134/OX40 values with Sample Diluent in order to precisely quantitate the actual human sCD134/OX40 level.

- It is suggested that each testing facility establishes a control sample of known sCD134 concentration and runs this additional control with each assay. If the values obtained are not within the expected range of this control, the assay results may be invalid.
- A representative standard curve is shown in Figure 8. This curve cannot be used to derive test results. Every laboratory must prepare a standard curve for each group of microwell strips assayed.

Figure 8.

Representative standard curve for sCD134 ELISA. sCD134 was diluted in serial two-fold steps in Sample Diluent, symbols represent the mean of three parallel titrations. Do not use this standard curve to derive test results. A standard curve must be run for each group of microwell strips assayed.

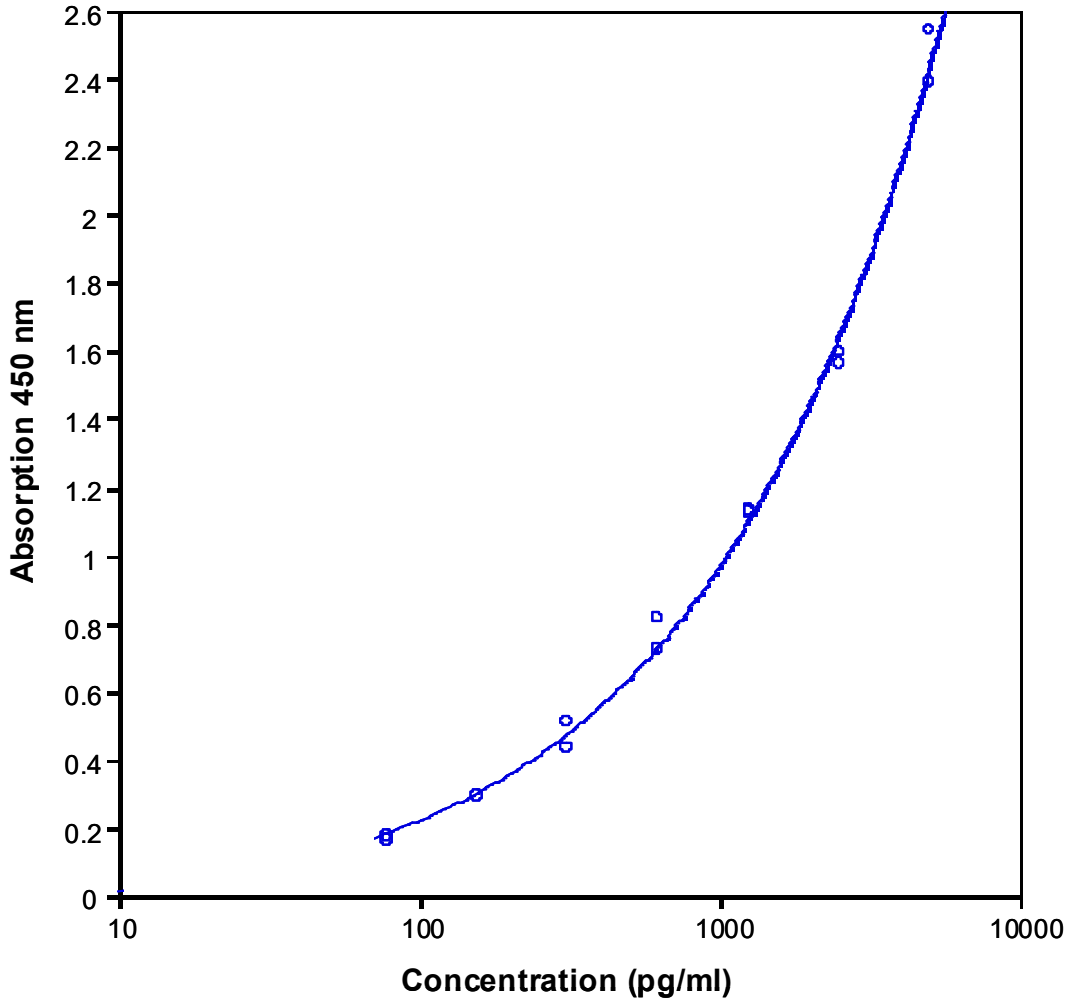


Table 2.

Typical data using the sCD134 ELISA
Measuring wavelength: 450 nm
Reference wavelength: 620 nm

Standard	Human sCD134/OX40 Concentration (pg/ml)	O.D. at 450 nm	Mean O.D. at 450 nm	C.V. (%)
1	5000	2.539	2.463	3.1
		2.387		
2	2500	1.559	1.579	1.2
		1.598		
3	1250	1.124	1.128	0.3
		1.131		
4	625	0.814	0.767	6.2
		0.719		
5	313	0.511	0.474	7.8
		0.437		
6	156	0.292	0.292	0.2
		0.291		
7	78	0.179	0.173	3.5
		0.167		
Blank	0	0.017	0.017	3.0
		0.016		

The OD values of the standard curve may vary according to the conditions of assay performance (e.g. operator, pipetting technique, washing technique or temperature effects). Furthermore, shelf life of the kit may affect enzymatic activity and thus colour intensity. Values measured are still valid.

12. Limitations

- Since exact conditions may vary from assay to assay, a standard curve must be established for every run.
- Bacterial or fungal contamination of either samples or reagents or cross-contamination between reagents may cause erroneous results.
- Disposable pipette tips, flasks or glassware are preferred, reusable glassware must be washed and thoroughly rinsed of all detergents before use.
- Improper or insufficient washing at any stage of the procedure will result in either false positive or false negative results. Completely empty wells before dispensing fresh Wash Buffer, fill with Wash Buffer as indicated for each wash cycle and do not allow wells to sit uncovered or dry for extended periods.
- The use of radioimmunotherapy has significantly increased the number of patients with human anti-mouse IgG antibodies (HAMA). HAMA may interfere with assays utilizing murine monoclonal antibodies leading to both false positive and false negative results. Serum samples containing antibodies to murine immunoglobulins can still be analysed in such assays when murine immunoglobulins (serum, ascitic fluid, or monoclonal antibodies of irrelevant specificity) are added to the sample.

13. Performance Characteristics

13.1. Sensitivity

The limit of detection of human sCD134 defined as the analyte concentration resulting in an absorption significantly higher than that of the dilution medium (mean plus two standard deviations) was determined to be 1.8 pg/ml (mean of 6 independent assays).

13.2. Reproducibility

13.2.1. Intra-assay

Reproducibility within the assay was evaluated in three independent experiments. Each assay was carried out with 6 replicates of 8 serum

samples containing different concentrations of human sCD134. Two standard curves were run on each plate. Data below show the mean human sCD134 concentration and the coefficient of variation for each sample. The overall intra-assay coefficient of variation was 8.0%.

Table 3.

Sample	Experiment	Mean Human CD134/OX40 Concentration (pg/ml)	Coefficient of Variation (%)
1	1	9281	5
	2	10139	8
	3	9966	11
2	1	5263	9
	2	4464	7
	3	3697	4
3	1	6570	13
	2	4659	6
	3	5658	8
4	1	3837	10
	2	2801	10
	3	3068	9
5	1	2503	3
	2	2230	6
	3	2495	7
6	1	8573	7
	2	6229	8
	3	6743	10
7	1	4809	9
	2	4223	5
	3	4070	6
8	1	1845	8
	2	1585	12
	3	1782	11

13.2.2. Inter-assay

Assay to assay reproducibility within one laboratory was evaluated in three independent experiments. Each assay was carried out with 6 replicates of 8 serum samples containing different concentrations of human sCD134. Two standard curves were run on each plate. Data below show the mean human sCD134 concentration and the coefficient of variation calculated on 18 determinations of each sample. The overall inter-assay coefficient of variation was 12.0%.

Table 4

Sample	sCD134 Concentration (pg/ml)	Coefficient of Variation (%)
1	9796	4.6
2	4475	17.5
3	5629	17.0
4	3236	16.6
5	2409	6.5
6	7182	17.2
7	4367	8.9
8	1738	7.8

13.3. Spike Recovery

The spike recovery was evaluated by spiking four levels of human sCD134 into serum. Recoveries were determined in 3 independent experiments with 4 replicates each.
The unspiked serum was used as blank in these experiments.
The overall mean recovery was 88%.

13.4. Dilution Parallelism

Serum samples with different levels of human sCD134/OX40 were analysed at serial 2-fold dilutions with 4 replicates each.

Table 5 shows detailed recovery data of 4 serum samples.

Table 5.

		Human sCD134 Concentration (pg/ml)		
Sample	Dilution	Expected Value	Observed Value	% Recovery of Exp. Value
1	1:2	--	31176	--
	1:4	15588	16171	104
	1:8	8085	8847	109
	1:16	4423	4538	103
2	1:2	--	26701	--
	1:4	13350	14230	107
	1:8	7115	8330	117
	1:16	4165	5157	124
3	1:2	--	16152	--
	1:4	8076	8158	101
	1:8	4079	4985	122
	1:16	2492	2168	87
4	1:2	--	13339	--
	1:4	6670	8325	125
	1:8	4162	4427	106
	1:16	2213	2280	103

13.5. Sample Stability

13.5.1. Freeze-Thaw Stability

Aliquots of serum samples (unspiked or spiked) were stored frozen at -20°C and thawed up to 5 times, and the human sCD134 levels determined. There was no significant loss of human sCD134 immunoreactivity by up to 5 cycles of freezing and thawing.

13.5.2. Storage Stability

Aliquots of a serum (spiked or unspiked) were stored at -20°C, 2-8°C, room temperature (RT) and 37°C and the human sCD134 level determined after 24 hours. There was no significant loss of human sCD134 immunoreactivity detected during storage under above conditions.

13.6. Specificity

The assay detects both natural and recombinant human sCD134/OX40.
The cross reactivity of circulating factors of the immune system was evaluated by spiking these proteins at physiologically relevant concentrations into a human sCD134/OX40 positive serum.
There was no crossreactivity detected.

13.7. Expected Serum Values

There are no detectable human sCD134 levels found in healthy blood donors. Elevated human sCD134/OX40 levels depend on the type of immunological disorder.

14. Bibliography

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15. Preparation Summary

15.1. Wash Buffer

Add **Wash Buffer Concentrate** 20 x (50 ml) to 950 ml distilled water

Number of Strips	Wash Buffer Concentrate (ml)	Distilled Water (ml)
1 - 6	25	475
1 - 12	50	950

15.2. Assay Buffer

Add **Assay Buffer Concentrate** 20x (5 ml) to 95 ml distilled water.

Number of Strips	Assay Buffer Concentrate (ml)	Distilled Water (ml)
1 - 6	2.5	47.5
1 - 12	5.0	95.0

15.3. Biotin-Conjugate

Make a 1:100 dilution of **Biotin-Conjugate** in Assay Buffer (1x).

Number of Strips	Biotin-Conjugate (ml)	Assay Buffer (ml)
1 - 6	0.03	2.97
1 - 12	0.06	5.94

15.5. Streptavidin-HRP

Make a 1:100 dilution of **Streptavidin-Conjugate** in Assay Buffer (1x).

Number of Strips	Streptavidin-HRP (ml)	Assay Buffer (ml)
1 - 6	0.06	5.94
1 - 12	0.12	11.88

15.4. Standard

Reconstitute lyophilized **human sCD134/OX40 standard** with distilled water. (Reconstitution volume is stated on the label of the standard vial.)

16. Test Protocol Summary

1. Determine the number of microwell strips required.
2. Wash microwell strips twice with Wash Buffer.
3. Standard dilution on the microwell plate: Add 100 µl Sample Diluent, in duplicate, to all standard wells. Pipette 100 µl prepared standard into the first wells and create standard dilutions by transferring 100 µl from well to well. Discard 100 µl from the last wells. Alternatively, external standard dilution in tubes (see 0): Pipette 100 µl of these standard dilutions in the microwell strips.
4. Add 100 µl Sample Diluent, in duplicate, to the blank wells.
5. Add 75 µl Sample Diluent to sample wells.
6. Add 25 µl sample in duplicate, to designated sample wells.
7. Prepare Biotin-Conjugate.
8. Add 50 µl Biotin-Conjugate to all wells.
9. Cover microwell strips and incubate 2 hours at room temperature (18° to 25°C).
10. Prepare Streptavidin-HRP.
11. Empty and wash microwell strips 3 times with Wash Buffer.
12. Add 100 µl diluted Streptavidin-HRP to all wells.
13. Cover microwell strips and incubate 1 hour at room temperature (18° to 25°C).
14. Empty and wash microwell strips 3 times with Wash Buffer.
15. Add 100 µl of TMB Substrate Solution to all wells.
16. Incubate the microwell strips for about 10 minutes at room temperature (18° to 25°C).
17. Add 100 µl Stop Solution to all wells.
18. Blank microwell reader and measure colour intensity at 450 nm.

Note: If instructions in this protocol have been followed samples have been diluted 1:4 (25 µl sample + 75 µl Sample Diluent), the concentration read from the standard curve must be multiplied by the dilution factor (x 4).

17. Ordering Information

Product Name	Product Description	Size	Catalog Number
sCD134 (OX-40) ELISA Kit, human	Human soluble CD134 (OX-40) ELISA Kit	96 Tests	PK-EL-68166

For in vitro research use only.
Not for diagnostic or therapeutic procedures.

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