

# CaptureSelect™ IgE Ligand Leakage ELISA (Lot 270820-XX)

Catalog Numbers 810354201 and 810354210

Pub. No. MAN0019632 Rev. A.0

**WARNING!** Read the Safety Data Sheets (SDSs) and follow the handling instructions. Wear appropriate protective eyewear, clothing, and gloves. Safety Data Sheets (SDSs) are available from [thermofisher.com/support](http://thermofisher.com/support).

## Product description

The CaptureSelect™ IgE Ligand Leakage ELISA (Lot 270820-XX) is designed for the detection of  $\leq 1$  ng/mL IgE affinity ligand that may be present in product purified with CaptureSelect™ IgE affinity media. The IgE Ligand Leakage ELISA can be used as a tool to aid in optimal purification process development and in routine quality control of in-process streams as well as final product.

## Contents and storage

Contents	Cat. No. 810354201 (1 assay)	Cat. No. 810354210 (10 assays)	Storage
Coating Reagent (green cap), Goat IgG anti-IgE affinity ligand	100 $\mu$ L	1,000 $\mu$ L	-20°C (-4°F)
Standard Solution (blue cap), IgE affinity ligand	100 $\mu$ L	1,000 $\mu$ L	
Biotinylated Reagent (yellow cap), Biotinylated Goat IgG anti-IgE affinity ligand	100 $\mu$ L	1,000 $\mu$ L	

## Principle of the assay

The CaptureSelect™ ligand leakage assay enables detection of the affinity ligand in solutions with and without the presence of the target protein. These sandwich assays involve the following steps:

1. A microtiter plate is coated with affinity-purified anti-affinity ligand polyclonal goat antibodies.
2. Samples containing the affinity ligand are incubated in the coated plate wells.
3. Bound affinity ligand is detected by biotinylated affinity-purified anti-affinity ligand polyclonal goat antibodies.
4. Streptavidin horseradish peroxidase conjugate is added to bind to the biotinylated antibody in the sandwich complex.
5. Substrate reactive with horseradish peroxidase (tetramethylbenzidine-hydrogen peroxide) is added.
6. The amount of hydrolyzed substrate is determined and is directly proportional to the concentration of affinity ligand present.

## Required materials not supplied

Unless otherwise indicated, all materials are available through [thermofisher.com](http://thermofisher.com).

- PBS: Phosphate buffered saline pH 7.4
- PBST: Phosphate buffered saline (PBS) pH 7.4 + 0.05 (v/v)% Tween™ 20 Solution
- Bovine Serum Albumin (BSA), Fraction V 99% pure (Sigma-Aldrich A3059)  
**Note:** Use of lower-purity Bovine Serum Albumin or other blocking proteins might result in higher background levels.
- Dilution Buffer A: 0.05 (v/v)% Tween™ 20 Solution in PBS pH 7.4
- 2X Dilution Buffer A: 0.1 (v/v)% Tween™ 20 Solution in PBS pH 7.4

- Blocking solution: 4 (w/v)% BSA in PBS pH 7.4
- Streptavidin-Horseradish Peroxidase (dilute immediately before use according to manufacturer guidelines)
- Tetramethylbenzidine (TMB) and hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>) substrate (prepare 1:1 solution immediately before use)
- 1 M H<sub>2</sub>SO<sub>4</sub>
- Microtiter plate (Maxisorp, Nunc)
- Microtiter plate shaker
- Microtiter plate reader (450 nm)
- Milli-Q™ water

## Methods

### Coat the plate

1. Make a 1:100 dilution of the Coating Reagent with PBS pH 7.4.
2. Add 100  $\mu\text{L}$  of diluted Coating Reagent to each well in a microtiter plate, then incubate overnight at 4°C (39°F).

### Prepare the standards

1. Prepare a 6.4  $\mu\text{g}/\text{mL}$  Standard Solution. Add the following to a microcentrifuge tube:

**Table 1 Standard Solution**

Component	Volume
Standard Solution (blue cap)	10 $\mu\text{L}$
Dilution Buffer A	770 $\mu\text{L}$
Total	780 $\mu\text{L}$

2. Using the stock Standard Solution from step 1 and Dilution Buffer A, prepare a standard dilution series according to the following table.

**Table 2 Standard dilution series (Dilution Buffer A)**

Dilution	Volume		Final concentration (ng/mL)
	Standard	Dilution Buffer A	
1	10 $\mu\text{L}$ of stock Standard Solution	990 $\mu\text{L}$	64.0
2	250 $\mu\text{L}$ of 64.0 ng/mL	750 $\mu\text{L}$	16.0
3	500 $\mu\text{L}$ of 16.0 ng/mL	500 $\mu\text{L}$	8.0
4	500 $\mu\text{L}$ of 8.0 ng/mL	500 $\mu\text{L}$	4.0
5	500 $\mu\text{L}$ of 4.0 ng/mL	500 $\mu\text{L}$	2.0
6	500 $\mu\text{L}$ of 2.0 ng/mL	500 $\mu\text{L}$	1.0
7	500 $\mu\text{L}$ of 1.0 ng/mL	500 $\mu\text{L}$	0.5
8	500 $\mu\text{L}$ of 0.5 ng/mL	500 $\mu\text{L}$	0.25
9	0	500 $\mu\text{L}$	0

### Prepare the samples

Dilute the sample by adding the following to a microcentrifuge tube:

**Table 3 Sample dilution**

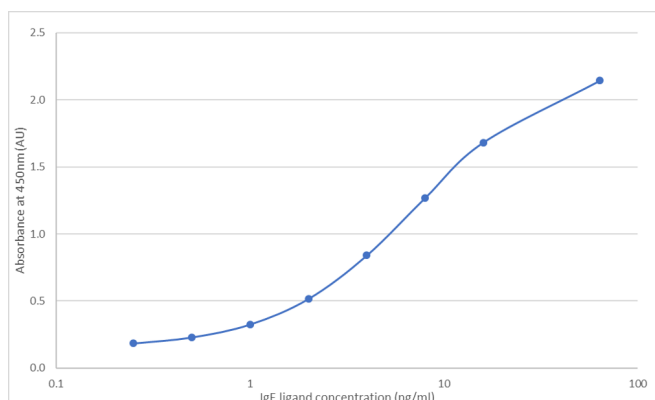
Component	Volume
Sample	75 $\mu\text{L}$
2X Dilution Buffer A	75 $\mu\text{L}$
Total	150 $\mu\text{L}$

## ELISA assay procedure

1. Block the plate:
  - a. Wash the coated plate 5 times with PBST.
  - b. Add 200  $\mu\text{L}$ /well of Blocking solution to the coated plate. Leave at room temperature for 30 minutes on a microtiter plate shaker.
  - c. Wash the plate 1 time with PBST.
2. Add samples and standards:
  - a. Add 100  $\mu\text{L}$  of each concentration of the standard dilution series (0 to 64.0 ng/mL) or sample to appropriate wells.
  - b. Incubate the plate at room temperature for 1 hour on a microtiter plate shaker.
  - c. Wash the plate 5 times with PBST.
3. Add Biotinylated Reagent:
  - a. Make a 1:100 dilution of the Biotinylated Reagent with Dilution Buffer A.
  - b. Add 100  $\mu\text{L}$  of diluted Biotinylated Reagent to each well and incubate the plate at room temperature for 1 hour.
  - c. Wash the plate 5 times with PBST.
4. Add diluted Streptavidin-Horseradish Peroxidase:
  - a. Dilute the Streptavidin-Horseradish Peroxidase in Dilution Buffer A according to the manufacturer's guidelines.
  - b. Add 100  $\mu\text{L}$  of diluted peroxidase to each well containing sample or standard.
  - c. Incubate the plate 1 hour at room temperature on a microtiter plate shaker.
  - d. Wash the plate 5 times with PBST.
  - e. Wash the plate 2 times with Milli-Q™ water.
5. Develop and read the plate:
  - a. Add 100  $\mu\text{L}$  of 1:1 mixed TMB/H<sub>2</sub>O<sub>2</sub> substrate per well.
  - b. Incubate the plate for approximately 15 minutes on a microtiter plate shaker.
  - c. When the background signal starts to develop, add 50  $\mu\text{L}$  of 1 M H<sub>2</sub>SO<sub>4</sub> to stop the coloring reaction and achieve a maximal signal-to-noise ratio.
  - d. Measure the absorbance of the microtiter plate at 450 nm with a microtiter plate reader.

## Calculate results

1. Construct a standard curve with values reported in ng/mL. Use curve-fitting routines such as 4-parameter logistic fit. Do not use linear regression analysis to interpolate values for samples, as this method may lead to significant inaccuracies.



**Figure 1** Example calibration curve: IgE leakage assay. Results obtained using 1:2,000 diluted Streptavidin/HRP (Dako, P0379) and TMB Substrate Reagent Set (BD Biosciences, 55214).

2. Use the standard curve and the sample absorbance to determine the ligand concentration in your sample.

## Validate the assay

Perform validation studies that include at least the following experiments to validate this kit for your application:

- Intra- and inter-assay precision experiments to establish reproducibility
- Recovery experiments using test samples with known amounts of the 500 µg/mL Standard Solution, which is included in the kit

## Limited product warranty

Life Technologies Corporation and/or its affiliate(s) warrant their products as set forth in the Life Technologies' General Terms and Conditions of Sale at [www.thermofisher.com/us/en/home/global/terms-and-conditions.html](http://www.thermofisher.com/us/en/home/global/terms-and-conditions.html). If you have any questions, please contact Life Technologies at [www.thermofisher.com/support](http://www.thermofisher.com/support).

## Customer and technical support

Visit [thermofisher.com/support](http://thermofisher.com/support) for the latest service and support information.

- Worldwide contact telephone numbers
- Product support information
  - Product FAQs
  - Software, patches, and updates
  - Training for many applications and instruments
- Order and web support
- Product documentation
  - User guides, manuals, and protocols
  - Certificates of Analysis
  - Safety Data Sheets (SDSs; also known as MSDSs)

**Note:** For SDSs for reagents and chemicals from other manufacturers, contact the manufacturer.



Life Technologies Corporation | J.H. Oortweg 21 | 2333 CH Leiden | The Netherlands

For descriptions of symbols on product labels or product documents, go to [thermofisher.com/symbols-definition](http://thermofisher.com/symbols-definition).

The information in this guide is subject to change without notice.

**DISCLAIMER:** TO THE EXTENT ALLOWED BY LAW, THERMO FISHER SCIENTIFIC INC. AND/OR ITS AFFILIATE(S) WILL NOT BE LIABLE FOR SPECIAL, INCIDENTAL, INDIRECT, PUNITIVE, MULTIPLE, OR CONSEQUENTIAL DAMAGES IN CONNECTION WITH OR ARISING FROM THIS DOCUMENT, INCLUDING YOUR USE OF IT.

**Revision history:** Pub. No. MAN0019632

Revision	Date	Description
A.0	22 Oct 2020	New document for the CaptureSelect™ IgE Ligand Leakage ELISA (Lot 270820-XX).

**Important Licensing Information:** These products may be covered by one or more Limited Use Label Licenses. By use of these products, you accept the terms and conditions of all applicable Limited Use Label Licenses.

©2020 Thermo Fisher Scientific Inc. All rights reserved. All trademarks are the property of Thermo Fisher Scientific and its subsidiaries unless otherwise specified.