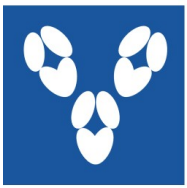

LSBio
an Absolute Biotech Company

Human CST3 / Cystatin C ELISA Kit (Sandwich ELISA)

User Manual

Catalog No. LS-F436

It is important that you read this entire manual carefully before starting your experiment.

SAMPLE ONLY

This kit is for **Research Use Only** and **Not for Diagnostic Use.**
This kit is not approved for use in humans or for clinical diagnosis.

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ASSAY SPECIFICATIONS

Target:	CST3 / Cystatin C
Synonyms:	CST3 / Cystatin C, CST3, cystatin C, ARMD11, BA218C14.4 (cystatin C), Cystatin-3, Cystatin 3, Cystatin C, Cystatin-C, Gamma-trace, Post-gamma-globulin
Specificity:	This kit is for the detection of Human CST3 / Cystatin C. No significant cross-reactivity or interference between CST3 / Cystatin C and analogs was observed.Species Reactivity Human Specificity Detects human Cystatin C in ELISAs. In sandwich ELISA assay, no cross reactivity with recombinant human Cystatin A, B, D, E/M, F, S, SA, SN, X/Z/P, or recombinant mouse Cystatin C is observed. This claim is limited by existing techniques therefore cross-reactivity may exist with untested analogs. Use with recombinant proteins is not supported.
Sample Types:	This kit is intended for use with samples such as Cell Culture Supernatants, Plasma, and Serum. It has been empirically tested using the standard supplied with the kit (typically a recombinant protein).
Detection:	Colorimetric - 450nm (TMB)
Measurement:	Quantitative
Detection Range:	0.3–20 ng/ml
Sensitivity:	Typically less than 0.313 ng/ml
Performance:	Intra-Assay CV (<10%); Inter-Assay CV (<12%)
Limitations:	This kit is for **Research Use Only** and is not intended for diagnostic use. This kit is not approved for use in humans or for clinical diagnosis.

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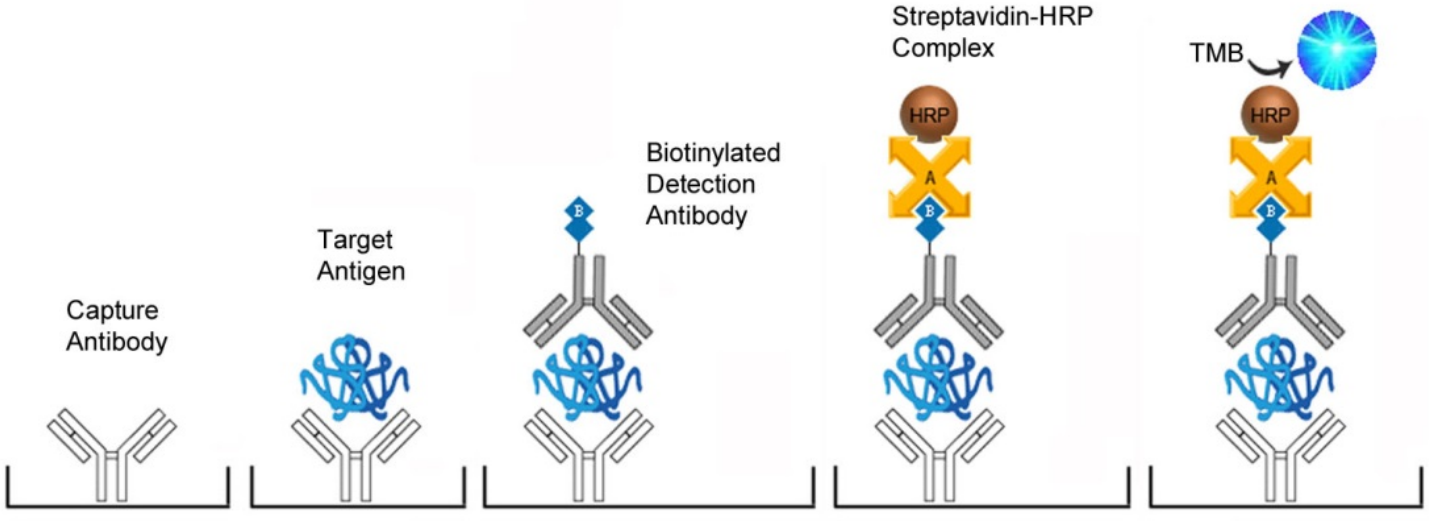
ASSAY PRINCIPLE

This assay is based on the sandwich ELISA principle. Each well of the supplied microtiter plate has been pre-coated with a target specific capture antibody. Standards or samples are added to the wells and the target antigen binds to the capture antibody. Unbound Standard or sample is washed away. A biotin-conjugated detection antibody is then added which binds to the captured antigen. Unbound detection antibody is washed away. An Avidin-Horseradish Peroxidase (HRP) conjugate is then added which binds to the biotin. Unbound Avidin-HRP conjugate is washed away. A TMB substrate is then added which reacts with the HRP enzyme resulting in color development. A sulfuric acid stop solution is added to terminate color development reaction and then the optical density (OD) of the well is measured at a wavelength of 450 nm ± 2 nm. An OD standard curve is generated using known antigen concentrations; the OD of an unknown sample can then be compared to the standard curve in order to determine its antigen concentration.

SAMPLE ONLY

ASSAY PRINCIPLE IMAGE



KIT COMPONENTS

Component	Quantity
Coated 96-well Strip Plate	1
Standard (Lyophilized)	2 vials
Assay Diluent* (5x)	1 vial x 15 ml
Biotinylated Detection Antibody	2 vials
HRP-Streptavidin Conjugate (200x)	1 vial x 200 µl
Wash Buffer (20x)	1 vial x 25 ml
TMB Substrate	1 vial x 12 ml
Stop Solution	1 vial x 8 ml
Plate Sealers	4
Instruction Manual	1

* May contain 0.09% sodium azide.

KIT STORAGE

The unopened kit may be stored for up to 6 months at 2°-8°C or 1 year at -20°C. Once reconstituted, Standard can be stored at -80°C for up to 1 week. Avoid freeze thaw cycles. Once opened, all other reagents can be stored up to 1 month at 2°-8°C. Once individual reagents are opened it is recommended that the kit be used within 1 month. Unused Strip Plate wells should be stored at 2°-8°C in a sealed bag containing desiccant in order to minimize exposure to moisture. Do not use the kit beyond its expiration date.

OTHER REQUIRED SUPPLIES

- Microplate reader with 450nm wavelength filter
- High-precision pipette and sterile pipette tips
- Eppendorf tubes
- Deionized or distilled water
- Absorbent paper

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ASSAY PLANNING

Before using this kit, researchers should consider the following:

1. Read this manual in its entirety in order to minimize the chance of error.
2. Confirm that you have the appropriate non-supplied equipment available.
3. Confirm that the species, target antigen, and sensitivity of this kit are appropriate for your intended application.
4. Confirm that your samples have been prepared appropriately based upon recommendations (see Sample Preparation) and that you have sufficient sample volume for use in the assay.
5. When first using a kit, appropriate validation steps should be taken before using valuable samples. Confirm that the kit adequately detects the target antigen in your intended sample type(s) by running control samples.
6. If the concentration of target antigen within your samples is unknown, a preliminary experiment should be run using a control sample to determine the optimal sample dilution (see Experimental Layout and Sample Preparation).
7. Ensure that the kit is properly stored and do not use it beyond its expiration date.
8. When using multiple lots of the same kit do not substitute reagents from one kit to another. Review each manual carefully as changes can occur between lots. To control for inter-assay variability include a carry-over control sample

SAMPLE ONLY

EXPERIMENTAL LAYOUT

The following is an example of how to layout a study. A dilution series of the positive control Standard should be run in duplicate or triplicate, with the last well in each series being the negative control blank. Samples should also be run in duplicate or triplicate. Unknown samples should be run as a dilution series in order to identify the optimal dilution that produces an OD reading within the OD range of the positive control Standard dilution series.

Example 1: Standard Curve and dilution series of an unknown sample.

	1	2	3	4	...
A	Standard Dilution 1	Standard Dilution 1	Sample (1:1)	Sample (1:1)	...
B	Standard Dilution 2	Standard Dilution 2	Sample (1:10)	Sample (1:10)	...
C	Standard Dilution 3	Standard Dilution 3	Sample (1:100)	Sample (1:100)	...
D	Standard Dilution 4	Standard Dilution 4	Sample (1:1k)	Sample (1:1k)	...
E	Standard Dilution 5	Standard Dilution 5	Sample (1:10k)	Sample (1:10k)	...
F	Standard Dilution 6	Standard Dilution 6	Sample (1:100k)	Sample (1:100k)	...
G	Standard Dilution 7	Standard Dilution 7	Sample (1:1,000k)	Sample (1:1,000k)	...
H	Negative Control	Negative Control	Sample (1:10,000k)	Sample (1:10,000k)	...

Example 2: Standard Curve and samples run in duplicate.

	1	2	3	4	...
A	Standard Dilution 1	Standard Dilution 1	Sample A	Sample E	...
B	Standard Dilution 2	Standard Dilution 2	Sample A	Sample E	...
C	Standard Dilution 3	Standard Dilution 3	Sample B	Sample F	...
D	Standard Dilution 4	Standard Dilution 4	Sample B	Sample F	...
E	Standard Dilution 5	Standard Dilution 5	Sample C	Sample G	...
F	Standard Dilution 6	Standard Dilution 6	Sample C	Sample G	...
G	Standard Dilution 7	Standard Dilution 7	Sample D	Sample H	...
H	Negative Control	Negative Control	Sample D	Sample H	...

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SAMPLE COLLECTION

This assay is intended for use with samples such as Cell Culture Supernatants, Plasma, and Serum. The sample collection protocols below have been provided for your reference.

Breast Milk - Centrifuge samples for 20 minutes at 1000×g to remove particulates. Collect the supernatant for assaying. Store un-diluted samples at -20°C or below. Avoid repeated freeze-thaw cycles.

Cell Lysates - Collect and pellet the cells by centrifugation and remove the supernatant. Wash the cells 3 times with PBS* then resuspend in PBS*. Lyse the cells by ultrasonication 4 times. Alternatively freeze the cells to -20°C and thaw to room temperature 3 times. Centrifuge at 1500×g for 10 minutes at 2 - 8°C to remove cellular debris. Collect the supernatant for assaying. Store un-diluted samples at -20°C or below. Avoid repeated freeze-thaw cycles.

Erythrocyte Lysates - Centrifuge whole blood for 20 minutes at 1000×g to pellet the cells and remove the supernatant. Wash the cells 3 times with PBS* then resuspend in PBS*. Freeze (-20°C)/thaw (room temperature) the cells 3 times. Centrifuge at 5,000×g for 10 minutes at 2-8°C to remove cellular debris. Collect the supernatant for assaying. Erythrocyte lysates must be diluted with Sample Diluent before running. Store un-diluted samples at -20°C or below. Avoid repeated freeze-thaw cycles.

Plasma - Collect plasma using Heparin, EDTA, or Citrate as an anticoagulant. Centrifuge samples for 15 minutes at 1000×g at 2–8°C within 30 minutes of collection. Collect the supernatant for assaying. Store un-diluted samples at -20°C or below. Avoid repeated freeze-thaw cycles.

Platelet-Poor Plasma - Collect plasma using Heparin, EDTA, or Citrate as an anticoagulant. Centrifuge samples for 15 minutes at 1000×g at 2–8°C within 30 minutes of collection. It is recommended that samples should be centrifuged for 10 minutes at 10,000×g for complete platelet removal. Collect the supernatant for assaying. Store un-diluted samples at -20°C or below. Avoid repeated freeze-thaw cycles.

Sperm and Seminal Plasma – Allow semen to liquefy at room temperature or 37°C. After liquefaction, centrifuge at 2,000×g for 10-15 minutes. Collect seminal plasma supernatant for assaying. Wash the precipitated protein 3 times with PBS* then resuspend in PBS*. Lyse the

SAMPLE ONLY

cells by ultrasonication then centrifuge at 2,000×g for 10-15 minutes. Collect the supernatant for assaying. Store un-diluted samples at -20°C or below. Avoid repeated freeze-thaw cycles.

Serum - Use a serum separator tube and allow samples to clot for 2 hours at room temperature or overnight at 4°C before centrifugation for 20 minutes at approximately 1000×g. Collect the supernatant for assaying. Store un-diluted samples at -20°C or below. Avoid repeated freeze-thaw cycles.

Tissue Homogenates - Because preparation methods for tissue homogenates vary depending upon tissue type, users should research tissue specific conditions independently. The following is one example only. Rinse tissues in PBS* to remove excess blood and weigh before homogenization. Finely mince tissues and homogenize them in 5-10mL of PBS*with a glass homogenizer on ice. Lyse the cells by ultrasonication or freeze (-20°C)/thaw (room temperature) 3 times. Centrifuge homogenate at 5000×g for 5 minutes. Collect the supernatant for assaying. Store un-diluted samples at -20°C or below. Avoid repeated freeze-thaw cycles.

Urine - Aseptically collect the first urine of the day (mid-stream), voided directly into a sterile container. Centrifuge to remove particulate matter and collect the supernatant for assaying. Store un-diluted samples at -20°C or below. Avoid repeated freeze-thaw cycles.

Cell culture supernatants, cerebrospinal, follicular, and lung lavage fluids, saliva, sweat, tears, and other biological fluids - Centrifuge samples for 20 minutes at 1000×g to remove particulates. Collect the supernatant for assaying. Store un-diluted samples at -20°C or below. Avoid repeated freeze-thaw cycles.

* 1xPBS (0.02mol/L pH7.0-7.2)

SAMPLE ONLY

SAMPLE COLLECTION NOTES

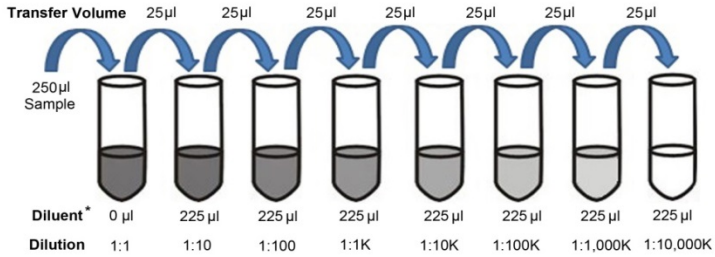
1. LifeSpan recommends that samples are used immediately upon preparation.
2. Avoid repeated freeze/thaw cycles for all samples.
3. In the event that a sample type not listed above is intended to be used with the kit, it is recommended that the customer conduct validation experiments in order to be confident in the results.
4. Due to chemical interference, the use of tissue or cell extraction samples prepared by chemical lysis buffers may result in inaccurate results.
5. Due to factors including cell viability, cell number, or sampling time, samples from cell culture supernatant may not be detected by the kit.
6. Samples should be brought to room temperature (18-25°C) before performing the assay without the use of extra heating.
7. Sample concentrations should be predicted before being used in the assay. If the sample concentration is not within the range of the standard curve, users must determine the optimal sample dilutions for their particular experiments.
8. LifeSpan is responsible for the quality and performance of the kit components but is NOT responsible for the performance of customer-supplied samples used with the kit.

SAMPLE ONLY

SAMPLE PREPARATION

The resulting Optical Density (OD) values of your sample must fall within the OD values of the standard curve in order for the calculated antigen concentration to be accurate. In many cases samples will need to be diluted in order to lower the antigen concentration to sufficient levels. Information about antigen concentrations within various sample types may be available from the published literature; however, it is often necessary to run a dilution series of each sample type. The following will prepare sufficient volumes to run the Sample dilution series in triplicate. In the case of small volume samples, a preliminary step dilution, such as 1:5 or 1:10, can be made using PBS (0.02mol/L pH7.0-7.2) as the diluent.

* **The final dilution should always be made using the same buffer that is used to dilute the Standards, and/or generate the Standard Curve.**



Special Cases

Samples typically require a 500 - 5,000 fold dilution in order for their OD readings to fall within the Standard Curve of this assay. However, due to sample variation, it is recommended that researchers determine the optimal dilution for their samples as described above.

* It is important to use Assay Diluent to dilute samples, to resuspend the Standard Stock, and to prepare the Standard dilution series.

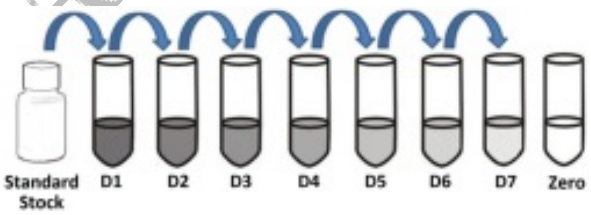
STANDARD PREPARATION

The following are instructions for the preparation of a Standard dilution series which will be used to generate the standard curve. The standard curve is then used to determine the concentration of target antigen in unknown samples (see the **Calculation of Results** section). The following will prepare sufficient volumes to run the Standard dilution series in duplicate. Resuspended Standard and prepared standard dilutions should be used immediately and not stored for future use.

Standard Stock Solution (20 ng/ml):Resuspend 1 tube of Standard with 0.8 ml of Assay Diluent*. Incubate at room temperature for 10 minutes with gentle agitation (avoid foaming).

D1 (20 ng/ml):	Pipette 500µl of Stock Standard into 0µl of Assay Diluent*
D2 (10 ng/ml):	Pipette 250µl of D1 into 250µl of Assay Diluent*
D3 (5 ng/ml):	Pipette 250µl of D2 into 250µl of Assay Diluent*
D4 (2.5 ng/ml):	Pipette 250µl of D3 into 250µl of Assay Diluent*
D5 (1.25 ng/ml):	Pipette 250µl of D4 into 250µl of Assay Diluent*
D6 (0.625 ng/ml):	Pipette 250µl of D5 into 250µl of Assay Diluent*
D7 (0.313 ng/ml):	Pipette 250µl of D6 into 250µl of Assay Diluent*

Zero Standard (0 ng/ml): Use Assay Diluent* alone



* It is important to use Assay Diluent to dilute samples, to resuspend the Standard Stock, and to prepare the Standard dilution series.

SAMPLE ONLY

REAGENT PREPARATION

Bring all reagents to room temperature (18-25°C) before use.

1x Assay Diluent: Prepare 75 ml of Assay Diluent by diluting the supplied 15 ml of 5x Assay Diluent Concentrate with 60 ml of deionized or distilled water. Assay Diluent can be stored at 4°C once prepared.

1x Wash Buffer: If crystals have formed in the concentrate, warm to room temperature and mix it gently until crystals have completely dissolved. Prepare 400 ml of Working Wash Buffer by diluting 20 ml of the supplied 20x Wash Buffer Concentrate with 380ml of deionized or distilled water. Wash Buffer can be stored at 4°C once prepared.

Detection Antibody Concentrate: Briefly spin down the Biotinylated Detection Antibody and add 100 µl of 1x Assay Diluent. This Detection Antibody Concentrate can be stored at 4°C for 5 days.

Detection Antibody Working Solution: Calculate the volume of Detection Antibody Working Solution needed for your particular experiment (100 µl per well) and prepare that volume by diluting the Detection Antibody Concentrate 80-fold (1: 80) with 1x Assay Diluent. Detection Antibody Working Solution must be prepared fresh for each experiment and cannot be stored.

HRP-Streptavidin Conjugate Working Solution: Gently mix the stock solution before use. Calculate the volume of HRP-Streptavidin Working Solution needed for your particular experiment (100 µl per well) and prepare that volume by diluting the 200x HRP-Streptavidin Conjugate 200-fold (1: 200) with 1x Assay Diluent. HRP-Streptavidin working solution must be prepared fresh for each experiment and cannot be stored.

TMB Substrate Solution: Using sterile techniques remove the needed volume of TMB Substrate solution for the number of wells you are planning to run. Dispose of unused TMB Substrate solution rather than returning it to the stock container.

SAMPLE ONLY

REAGENT PREPARATION NOTES

1. It is highly recommended that standard curves and samples are run in duplicate within each experiment.
2. Once resuspended, standards should be used immediately, and used only once. Long-term storage of resuspended standards is NOT recommended.
3. In order to avoid repeat freeze thaws, prepare one-time use aliquots of standard for long term storage at -20/-80°C.
4. All solutions prepared from concentrates are intended for one-time use. Do not reuse solutions.
5. Do not prepare Standard dilutions directly in wells.
6. Prepared Reagents may adhere to the tube wall or cap during transport; centrifuge tubes briefly before opening.
7. All solutions should be gently mixed prior to use.
8. Reconstitute stock reagents in strict accordance with the instructions provided.
9. To minimize imprecision caused by pipetting, ensure that pipettes are calibrated. Pipetting volumes of less than 10µL is not recommended.
10. TMB Substrate solution is easily contaminated; sterility precautions should be taken. TMB Substrate solution should also be protected from light.
11. Do not substitute reagents from one kit lot to another. Use only those reagents supplied within this kit.
12. Due to the antigen specificity of the antibodies used in this assay, native or recombinant proteins from other manufacturers may not be detected by this kit.

SAMPLE ONLY

ASSAY PROCEDURE

Bring all reagents and samples to room temperature without additional heating and mix thoroughly by gently swirling before pipetting (avoid foaming). Prepare all reagents, working standards, and samples as directed in the previous sections.

1. Add 100 µl of **Standard, Blank, or Sample** per well, cover with a plate sealer, and incubate for 2.5 hours at room temperature with gentle shaking.
2. Aspirate the liquid from each well and wash 4 times. Wash by adding approximately 300 µl of Wash Buffer using a squirt bottle, multi-channel pipette, manifold dispenser or automated washer. Allow each wash to sit for 1-2 minutes before completely aspirating. After the last wash, aspirate to remove any remaining Wash Buffer then invert the plate and tap against clean absorbent paper.
3. Add 100 µl of **Detection Antibody Working Solution** to each well and gently agitate to ensure thorough mixing. Incubate for 1 hour at room temperature with gentle shaking.
4. Aspirate and wash the wells as outlined in step 2.
5. Add 100 µl of **HRP-Streptavidin Working Solution** to each well and incubate for 45 minutes at room temperature with gentle shaking.
6. Aspirate and wash the wells as outlined in step 2.
7. Add 100 µl of **TMB Substrate** solution to each well and incubate for 30 minutes at room temperature in the dark with gentle shaking. Monitor periodically until optimal color development has been achieved.
8. Add 50 µl of **Stop Solution** to each well and record the total development time. The blue color will change to yellow. If color change does not appear uniform, gently tap the plate to ensure thorough mixing. The Stop Solution should be added to wells in the same order and timing as the TMB Substrate solution.
9. Determine the optical density (OD value) of each well immediately using a microplate reader set to 450 nm.

SAMPLE ONLY

ASSAY PROCEDURE NOTES

1. **ELISA Plate**: Keep appropriate numbers of strips for 1 experiment and remove extra strips from microtiter plate. Removed strips should be placed in a sealed bag containing desiccant and stored at -20°C.
2. **Solutions**: To avoid cross-contamination, change pipette tips between additions of each standard, between sample additions, and between reagent additions. Also, use separate reservoirs for each reagent.
3. **Applying Solutions:** All solutions should be added to the bottom of the ELISA plate well. Avoid touching the inside wall of the well. Avoid foaming when possible.
4. **Assay Timing**: The interval between adding sample to the first and last wells should be minimized. Delays will increase the incubation time differential between wells, which will significantly affect the experimental accuracy and repeatability. For each step in the procedure, total dispensing time for addition of reagents or samples should not exceed 10 minutes.
5. **Incubation**: To prevent evaporation and ensure accurate results, proper adhesion of plate sealers during incubation steps is necessary. Do not allow wells to sit uncovered for extended periods of time between incubation steps. Do not let wells dry out at any time during the assay. Strictly observe the recommended incubation times and temperatures.
6. **Washing**: Proper washing procedure is critical. Insufficient washing will result in poor precision and falsely elevated absorbance readings. Residual liquid in the reaction wells should be patted dry against absorbent paper during the washing process. Do not put absorbent paper directly into the reaction wells.
7. **Controlling Substrate Reaction Time**: After the addition of the TMB Substrate, periodically monitor the color development. Stop color development before the color becomes too deep by adding Stop Solution. Excessively strong color will result in inaccurate absorbance readings.
8. **Reading**: The microplate reader should be preheated and programmed prior to use. Prior to taking OD readings, remove any residual liquid or fingerprints from the underside of the plate and confirm that there are no bubbles in the wells.

SAMPLE ONLY

9. **Reaction Time Control**: Control reaction time should be strictly followed as outlined.
10. **Stop Solution**: The Stop Solution contains an acid, therefore proper precautions should be taken during its use, such as protection of the eyes, hands, face, and clothing.
11. **Mixing**: During incubation times, the use of a micro-oscillator at low frequency is recommended. Sufficient and gentle mixing is particularly important in producing reliable results.
12. To minimize external influence on the assay performance, operational procedures and lab conditions (such as room temperature, humidity, incubator temperature) should be strictly controlled. It is also strongly suggested that the whole assay is performed by the same operator from the beginning to the end.

SAMPLE ONLY

ASSAY PROCEDURE SUMMARY

Prepare all reagents, samples and standards.

Add 100 µl of **Sample, Standard, or Blank** to each well and incubate for 2.5 hours at room temperature.

Aspirate and wash 4 times.

Add 100 µl of **Biotinylated Detection Antibody** and incubate for 1 hour at room temperature.

Aspirate and wash 4 times.

Add 100 µl of **HRP-Streptavidin Solution** and incubate for 45 minutes at room temperature.

Aspirate and wash 4 times.

Add 100 µl of **TMB Substrate** solution and incubate for 30 minutes.

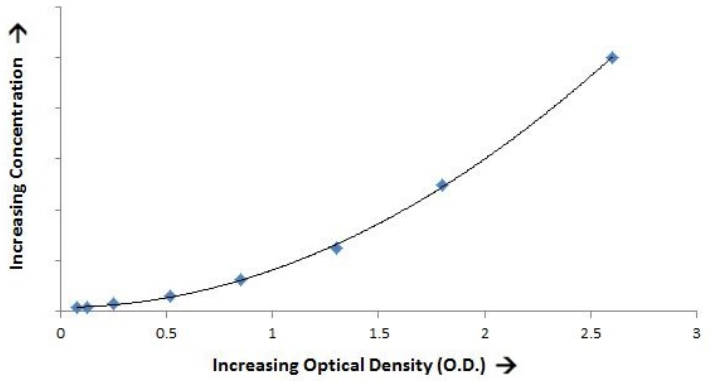
Add 50 µl of **Stop Solution**.

Read immediately at 450nm.

CALCULATION OF RESULTS

Average the duplicate readings for each standard, control, and sample and subtract the average zero standard optical density. Create a standard curve by reducing the data using computer software capable of generating a four parameter logistic (4-PL) curve-fit. As an alternative, construct a standard curve by plotting the mean absorbance for each standard on the x-axis against the concentration on the y-axis and draw a best fit curve through the points on the graph. The data may be linearized by plotting the log of the target antigen concentrations versus the log of the O.D. and the best fit line can be determined by regression analysis. Use of a commercial software program such as CurveExpert is recommended for performing this calculation. This procedure will produce an adequate but less precise fit of the data. If samples have been diluted, the concentration read from the standard curve must be multiplied by the dilution factor.

Typical Data: The following standard curve is an example only and should not be used to calculate results for tested samples. A new standard curve must be generated for each set of samples tested.



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TROUBLESHOOTING GUIDE

Problem	Possible Cause	Solution
Poor standard curve	Inaccurate pipetting	Check pipettes
	Improper standard dilution	Briefly spin the vial of standard and dissolve the powder thoroughly by a gentle mix.
	Wells not completely aspirated	Completely aspirate wells between steps.
Low signal	Too brief incubation times	Ensure sufficient incubation time.
	Incorrect assay temperature	Use recommended incubation temperature. Bring substrate to room temperature before use.
	Inadequate reagent volumes	Check pipettes and ensure correct preparation.
	Improper dilution	
Deep color but low value	Plate reader settings not optimal	Verify the wavelength and filter setting in the plate reader.
		Turn on and warm-up the plate reader prior to use.

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Troubleshooting Guide (continued)

Problem	Possible Cause	Solution
Large CV	Inaccurate pipetting	Check pipettes
High background	Concentration of detector too high	Use recommended dilution factor.
	Plate is insufficiently washed	Review the manual for proper washing instructions. 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	All the reagents should be stored according to the instructions.
	Stop solution not added	Stop solution should be added to each well before measurement.

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ASSAY USAGE AND SUPPORT

This kit is for **Research Use Only** and is not intended for diagnostic use. This kit is not approved for use in humans or for clinical diagnosis. This kit should not be used beyond the expiration date printed on the lot specific kit label.

Warning: This reagent may contain sodium azide and sulfuric acid. The chemical, physical, and toxicological properties of these materials have not been thoroughly investigated. Standard Laboratory Practices should be followed. Avoid skin and eye contact, inhalation, and ingestion. Sodium azide forms hydrazoic acid under acidic conditions and may react with lead or copper plumbing to form highly explosive metal azides. On disposal, flush with large volumes of water to prevent accumulation.

The LifeSpan Guarantee: LifeSpan guarantees the integrity of all components contained with an immunoassay kit, and that the standards provided will produce a standard curve sufficient for the quantification of target antigen concentrations that fall within the specified range of the kit. Due to the variable nature of sample types and preparations, LifeSpan cannot guarantee that the target antigen will be detectable in customer-supplied samples. For this reason, LifeSpan strongly recommends that customers conduct validation experiments, using positive control samples generated in a similar manner to the experimental samples, before using valuable research specimens. Due to the perishable nature of ELISA kits, orders of greater than 5 units of a single catalog number cannot be returned upon shipment, and are not eligible for refund.

Technical Support: LifeSpan's knowledgeable staff scientists are available to answer any questions about this kit. Email your detailed questions to Technical.Support@LSBio.com.

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RETURNS, REFUNDS, CANCELLATIONS

Any problems with LifeSpan products must be reported to LifeSpan within 10 days of product receipt. The customer must obtain written authorization from LifeSpan before returning items. To request that goods be returned, please contact LifeSpan Technical Support. If an error by LifeSpan Biosciences results in shipment of an incorrect order, LifeSpan will, at its option, either ship a replacement order at no charge, or credit the customer's account for the original product shipped in error. Returns and cancellations may be subject to a 30% restocking fee. Conditions & Warranty: All LifeSpan products are intended for Research Use Only and are not for use in human therapeutic or diagnostic applications. The information supplied with each product is believed to be accurate, but no warranty or guarantee is offered for the products, because the ultimate conditions of use are beyond LifeSpan's control. The information supplied with each product is not to be construed as a recommendation to use this product in violation of any patent, and LifeSpan will not be held responsible for any infringement or other violation that may occur with the use of its products. Under no event will LifeSpan be responsible for any loss of profit or indirect consequential damage, including, but not limited to, personal injuries resulting from use of these products. LifeSpan's liability to any user of Products for damages that do not result from any fault of the user, will be limited to replacement of the Product(s) only, and in no event shall LifeSpan's liability exceed the actual price received by LifeSpan for the Product(s) at issue. LifeSpan shall not be liable for any indirect, special, incidental or consequential damages. LIFESPAN FURTHER DISCLAIMS ANY AND ALL EXPRESS AND IMPLIED OR STATUTORY WARRANTIES WITH RESPECT TO THE PRODUCTS, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. LifeSpan disclaims any and all responsibility for any injury or damage which may be caused by the fault of the user.

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