

Human HER3/ERBB3 ELISA Kit

Sandwich ELISA

Catalog EL-213-851803

INTRODUCTION

ERBB3 (HER3) encodes a receptor tyrosine kinase belonging to the EGFR/ErbB family, but its intracellular domain lacks catalytic kinase activity, so it functions as a signaling partner rather than an autonomous enzyme. It carries a binding site for the ligand neuregulin-1, and engagement by this or related ligands drives pairing with catalytically active family members such as EGFR or HER2, triggering downstream proliferation and differentiation cascades including PI3K/AKT signaling. Amplification or overexpression of ERBB3 has been documented across a range of solid tumors, including breast, prostate, bladder, and gastrointestinal malignancies, making it a target of interest in oncology research. Separately, rare inherited loss-of-function variants in the same gene have been linked to congenital neuromuscular contracture and visceral neuropathy syndromes, underscoring its additional developmental role outside of cancer biology.

PRINCIPLE OF THE ASSAY

This kit utilizes a sandwich enzyme immunoassay format in which the microtiter plate wells are pre-coated with a capture antibody specific to Human HER3/ERBB3. During the assay, standards or samples are introduced into the appropriate wells alongside a biotin-conjugated detection antibody that also targets Human HER3/ERBB3. Avidin conjugated to horseradish peroxidase (HRP) is then added to each well and allowed to incubate. Upon addition of TMB substrate solution, a colorimetric signal develops exclusively in wells where Human HER3/ERBB3, the biotin-conjugated detection antibody, and the avidin-HRP conjugate are all present. The enzymatic reaction is halted by addition of a sulphuric acid stop solution, and the resulting color change is measured spectrophotometrically at 450 nm ($\pm$ 10 nm). HER3/ERBB3 concentrations in unknown samples are subsequently determined by referencing sample optical density values against a standard curve.

MATERIALS AND STORAGE

Store kit components at -20°C unless specified otherwise. DO NOT USE past kit expiration date. Some vials contain a small amount of reagents. Spin tubes on pulse setting prior to opening.

Each kit includes:	Units
Pre-Coated Microplate	12 strips x 8 wells
Standard (Lyophilized)	2 vials
Biotinylated Antibody (100×)	120 µL
Streptavidin-HRP (100×)	120 µL
Standard/Sample Diluent Buffer	20 mL
Biotinylated Antibody Diluent	12 mL
HRP Diluent	12 mL
Wash Buffer (25×)	20 mL
TMB Substrate Solution	10 mL
Stop Reagent	6 mL
Plate Covers	2 pieces

Do not mix or substitute reagents with those from other lots.

MATERIALS AND INSTRUMENTS REQUIRED BUT NOT SUPPLIED

- Precision pipettes calibrated to deliver 5-1000µL
- Multi-channel pipette calibrated to deliver 50-200µL
- Plate shaker
- Disposable tips
- Vortex-Mixer
- Distilled or de-ionized water
- Microplate reader capable of reading 450nm with background subtraction at 620nm

SAFETY PRECAUTIONS

- The test protocol must be followed strictly.
- All reagents containing human material should be handled as if potentially infectious. Operators

should wear gloves and protective clothing when handling any patient sera or serum based products.

- The kit reagents contain antimicrobial agents, acid and 3,3',5,5'-tetramethylbenzidine. Avoid contact with the skin and eyes. Rinse immediately with plenty of water if any contact occurs.
- Any liquid that has been brought into contact with potentially infectious material has to be discarded in a container with a disinfectant. Disposal must be performed in accordance with local regulations.
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- Only trained laboratory personnel should execute this test.

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PREPARATION OF REAGENTS

Prepare only the appropriate amount of required reagent on the day of use. Store all reagents as per instructions stated on the label.

- 1. Wash Buffer (1X) Preparation: Dilute the 25X wash buffer concentrate 1:25 with double-distilled Water.**
- 2. Detection Reagent (1X) Preparation: Dilute the biotinylated antibody and streptavidin-HRP concentrates 100-fold with Biotinylated Antibody Diluent and HRP Diluent, respectively, immediately before use.**
- 3. Preparation of Calibrators: Prepare calibrators by serial dilution from a 5000 down to 78.13 (plus a 0 blank), per the source manual.**

Sol'n ID	Source	Source Vol (μL)	Cal. Diluent (μL)	Final Vol (μL)	Final Conc. (ng/mL)
Std 1	Stock Standard	500	500	1000	5000
Std 2	Std 1	500	500	1000	2500
Std 3	Std 2	500	500	1000	1250
Std 4	Std 3	500	500	1000	625
Std 5	Std 4	500	500	1000	312.5
Std 6	Std 5	500	500	1000	156.25
Std 7	Std 6	500	500	1000	78.13
Blank	Std 7	500	500	1000	0

SPECIMEN STORAGE

This kit is compatible with EDTA-plasma, heparin-plasma and serum samples. Samples can be stored at or below -20°C for up to 1 year.

ASSAY PROCEDURE

1. After the kit is equilibrated at room temperature, add 100 μL of Standard Working Buffer (gradually diluted according to the instructions) or 100 μL of sample to each well, and incubate at 37°C for 80 minutes.
2. Discard the liquid in the plate, add 200 μL 1× Wash Buffer to each well, and wash the plate 3 times. After pat it dry against clean absorbent paper, add 100 μL Biotinylated Antibody Working Solution (1×) to each well, incubate at 37°C for 50 minutes.
3. Discard the liquid in the plate, add 200 μL 1× Wash Buffer to each well, and wash the plate 3 times. After pat it dry against clean absorbent paper, add 100 μL 1× Streptavidin-HRP Working Solution to each well, incubate at 37°C for 50 minutes.
4. Discard the liquid in the plate, add 200 μL 1× Wash Buffer to each well, and wash the plate 5 times. After pat it dry against clean absorbent paper, add 90 μL TMB Substrate Solution to each well, incubate at 37°C for 20 minutes in the dark.
5. Add 50 μL Stop Solution to each well, shake plate on a plate shaker for 1 minute to mix. Record the OD at 450 nm immediately, calculation of the results.

CALCULATIONS AND RESULTS

1. Construct a standard curve by plotting the absorbance obtained from each standard against concentration. Use a 4 or 5 parameter curve fit. Alternatively a log-log curve fit may be used.
2. The concentration of the unknowns can be read directly from this standard curve using the absorbance value for each

sample.

3. Any sample undiluted or diluted still reading greater than the highest standard should be diluted appropriately and retested. If the samples have been diluted, the concentration determined from the standard curve must be multiplied by the dilution factor.

PERFORMANCE CHARACTERISTICS

Precision: Intra-assay CV < 8%. Inter-assay CV < 10%.

Detection Limit: 32 pg/mL

Recovery: Serum (n = 5): 78-92% (avg 85%); EDTA plasma (n = 5): 87-99% (avg 93%); Heparin plasma (n = 5): 85-99% (avg 92%)

Specificity: This assay has high sensitivity and excellent specificity for detection of Human ErbB3. No significant cross-reactivity or interference between Human ErbB3 and analogues was observed.



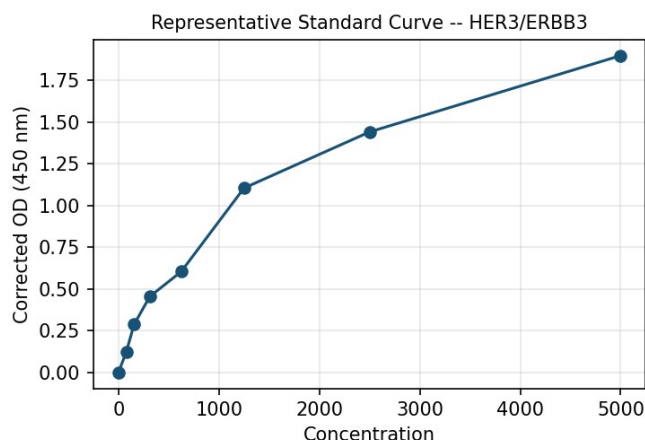
This kit employs a sandwich enzyme immunoassay technique to quantify HER3/ERBB3 in biological samples.

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SAMPLE STANDARD CURVE



Representative standard curve shown for illustration only. This curve should not be used to calculate unknown sample concentrations -- run a new standard curve with each assay.

ORDERING INFORMATION

Please visit www.affinityimmuno.com to order this product. Visa, Mastercard, AMEX and PayPal are accepted in our online store.

Your order will be processed immediately and you will be notified with a delivery timeframe.