

## ab322374 – Human Laminin alpha 4/LAMA4 SimpleStep ELISA® Kit

For the quantitative measurement of Laminin alpha 4/LAMA4 in human serum, plasma (citrate), plasma (heparin), and cell culture supernatant.  
For research use only - not intended for diagnostic use.

For overview, typical data and additional information please visit: [www.abcam.com/ab322374](http://www.abcam.com/ab322374)

This kit is available in a 384-well plate format. This plate utilizes smaller volumes of standards and samples per well. Directions for using this format can be found on pages 6-7.

**Storage and Stability:** Store kit at 2-8°C immediately upon receipt. Refer to list of materials supplied for storage conditions of individual components. Observe the storage conditions for individual prepared components in the Standard Preparation and Reagent preparation sections.

### Materials Supplied

Item	Quantity 1 x 96 tests	Storage Condition
Human Laminin alpha 4/LAMA4 Lyophilized Capture Antibody	1 Vial	+4°C
Human Laminin alpha 4/LAMA4 Detector Antibody 10X	600 µL	+4°C
Human Laminin alpha 4/LAMA4 Lyophilized Recombinant Protein	2 Vials	+4°C
Antibody Diluent 4Bl	6 mL	+4°C
Sample Diluent 50BS	20 mL	+4°C
Sample Diluent NS	12 mL	+4°C
Wash Buffer PT 10X	20 mL	+4°C
TMB Development Solution	12 mL	+4°C
Stop Solution	12 mL	+4°C
SimpleStep Pre-Coated 96-Well Microplate	96 wells	+4°C
Plate Seal	1	+4°C

### Materials Required, Not Supplied

These materials are not included in the kit, but will be required to successfully utilize this assay:

Microplate reader capable of measuring absorbance at 450 or 600 nm.  
Deionized water.  
Multi- and single-channel pipettes.  
Tubes for standard dilution.  
Plate shaker for all incubation steps.  
Optional: Phenylmethylsulfonyl Fluoride (PMSF) (or other protease inhibitors).

### Reagent Preparation

Equilibrate all reagents to room temperature (18-25°C) prior to use. The kit contains enough reagents for 96 wells. The sample volumes below are sufficient for 48 wells (6 x 8-well strips); adjust volumes as needed for the number of strips in your experiment.

Prepare only as much reagent as is needed on the day of the experiment. Capture and Detector Antibodies have only been tested for stability in the provided 10X formulations.

Sample Diluent 50BS may contain precipitate, this is normal. If precipitate is not dissolved by gentle mixing, the precipitate may be dissolved by gentle warming and mixing at 37°C for 10 minutes. If precipitate remains, gently spin down and avoid visible precipitates when pipetting.

**1X Wash Buffer PT:** Prepare 1X Wash Buffer PT by diluting Wash Buffer PT 10X with deionized water. To make 50 mL 1X Wash Buffer PT combine 5 mL Wash Buffer PT 10X with 45 mL deionized water. Mix thoroughly and gently.

**10X Capture Antibody:** To reconstitute the lyophilized capture antibody, centrifuge at 10,000 g for 2 minutes. Add 660 µL of Sample Diluent NS, let sit at room temperature for 10 minutes and resuspend well by inverting the tube by hand and gently pipetting. Unused reconstituted antibody can be stored frozen at -20°C. Avoid repeated freeze-thaw cycles.

**Antibody Cocktail:** Prepare Antibody Cocktail by diluting the capture and detector antibodies in Antibody Diluent 4Bl. To make 3 mL of the Antibody Cocktail combine 300 µL 10X Capture Antibody and 300 µL 10X Detector Antibody with 2.4 mL Antibody Diluent 4Bl. Mix thoroughly and gently.

**Standard Preparation:** Always prepare a fresh set of standards for every use. Discard working standard dilutions after use as they do not store well. The following section describes the preparation of a standard curve for duplicate measurements (recommended).

### For Cell Culture Supernatant Samples:

1. Reconstitute the Laminin alpha 4/LAMA4 standard sample by adding the volume of Sample Diluent NS indicated on the protein vial label. Hold at room temperature for 10 minutes. Mix thoroughly and gently. This is the 72 ng/mL **Stock Standard** Solution.
2. Label eight tubes, Standards 1 – 8.
3. Add 417 µL of Sample Diluent NS into tube number 1 and 150 µL of Sample Diluent NS into numbers 2 – 8.
4. Use the **Stock Standard** to prepare the following dilution series. Standard #8 contains no protein and is the Blank control:

Standard #	Dilution Sample	Volume to Dilute (µL)	Volume of Diluent (µL)	Starting Conc. (pg/mL)	Final Conc. (pg/mL)
1	<b>Stock Standard</b>	15	417	72,000	2,500
2	Standard#1	150	150	2,500	1,250
3	Standard#2	150	150	1,250	625
4	Standard#3	150	150	625	312.5
5	Standard#4	150	150	312.5	156.3
6	Standard#5	150	150	156.3	78.13
7	Standard#6	150	150	78.13	39.06
8	Blank Control	0	150	0	0

**For Serum, Plasma – Citrate, and Plasma – Heparin Samples:**

1. Reconstitute the Laminin alpha 4/LAMA4 standard sample by adding the volume of Sample Diluent 50BS indicated on the protein vial label. Hold at room temperature for 10 minutes. Mix thoroughly and gently. This is the 72 ng/mL **Stock Standard** Solution.
2. Label eight tubes, Standards 1 – 8.
3. Add 393 µL of Sample Diluent 50BS into tube number 1 and 150 µL of Sample Diluent 50BS into numbers 2 – 8.
4. Use the **Stock Standard** to prepare the following dilution series. Standard #8 contains no protein and is the Blank control:

Standard #	Dilution Sample	Volume to Dilute (µL)	Volume of Diluent (µL)	Starting Conc. (pg/mL)	Final Conc. (pg/mL)
1	<b>Stock Standard</b>	39	393	72,000	6,500
2	Standard#1	150	150	6,500	3,250
3	Standard#2	150	150	3,250	1,625
4	Standard#3	150	150	1,625	812.5
5	Standard#4	150	150	812.5	406.3
6	Standard#5	150	150	406.3	203.1
7	Standard#6	150	150	203.1	101.6
8	Blank Control	0	150	0	0

**Sample Preparation**

Typical Sample Dynamic Range	
Sample Type	Range
Serum	≤ 50%
Plasma – Citrate	≤ 25%
Plasma – Heparin	≤ 50%
HUVEC Cell Culture Supernatant	1.56 - 50%

**Serum** Samples should be collected into a serum separator tube. After clot formation, centrifuge samples at 2,000 x g for 10 minutes and collect serum. Dilute samples at least 1:2 into Sample Diluent 50BS and assay. Store un-diluted serum at -20°C or below. Avoid repeated freeze-thaw cycles.

**Plasma** Collect plasma using citrate or heparin. Centrifuge samples at 2,000 x g for 10 minutes. Dilute plasma (citrate) at least 1:4 and plasma (heparin) at least 1:2 into Sample Diluent 50BS and assay. Store un-diluted plasma samples at -20°C or below for up to 3 months. Avoid repeated freeze-thaw cycles. Note: This kit is incompatible with plasma (EDTA) samples.

**Cell Culture Supernatants** Centrifuge cell culture media at 2,000 x g for 10 minutes to remove debris. Collect supernatants and dilute samples at least 1:2 into Sample Diluent NS and assay. Store un-diluted samples at -20°C or below. Avoid repeated freeze-thaw cycles.

**Plate Preparation**

The 96 well plate strips included with this kit are supplied ready to use. It is not necessary to rinse the plate prior to adding reagents.

Unused plate strips should be immediately returned to the foil pouch containing the desiccant pack, resealed and stored at 4°C.

For each assay performed, a minimum of two wells must be used as the zero control.

For statistical reasons, we recommend each sample should be assayed with a minimum of two replicates (duplicates).

Differences in well absorbance or "edge effects" have not been observed with this assay.

## Assay Procedure

Equilibrate all materials and prepared reagents to room temperature prior to use.

We recommend that you assay all standards, controls, and samples in duplicate.

1. Prepare all reagents, working standards, and samples as directed in the previous sections.
2. Remove excess microplate strips from the plate frame, return them to the foil pouch containing the desiccant pack, reseal and return to 4°C storage.
3. Add 50 µL of all sample or standard to appropriate wells.
4. Add 50 µL of the Antibody Cocktail to each well.
5. Seal the plate and incubate for 1 hour at room temperature on a plate shaker set to 400 rpm.
6. Wash each well with 3 x 350 µL 1X Wash Buffer PT. Wash by aspirating or decanting from wells then dispensing 350 µL 1X Wash Buffer PT into each well. Wash Buffer PT should remain in wells for at least 10 seconds. Complete removal of liquid at each step is essential for good performance. After the last wash invert the plate and tap gently against clean paper towels to remove excess liquid.
7. Add 100 µL of TMB Development Solution to each well and incubate for 10 minutes in the dark on a plate shaker set to 400 rpm.

*Given variability in laboratory environmental conditions, optimal incubation time may vary between 5 and 20 minutes.*

**Note:** The addition of Stop Solution will change the color from blue to yellow and enhance the signal intensity about 3X. To avoid signal saturation, proceed to the next step before the high concentration of the standard reaches a blue color of O.D.600 equal to 1.0.

8. Add 100 µL of Stop Solution to each well. Shake plate on a plate shaker for 1 minute to mix. Record the OD at 450 nm. This is an endpoint reading.
9. Alternative to 7 – 8: Instead of the endpoint reading at 450 nm, record the development of TMB Substrate kinetically. Immediately after addition of TMB Development Solution begin recording the blue color development with elapsed time in the microplate reader prepared with the following settings:

Mode	Kinetic
Wavelength:	600 nm
Time:	up to 20 min
Interval:	20 sec - 1 min
Shaking:	Shake between readings

**Note** that an endpoint reading can also be recorded at the completion of the kinetic read by adding 100 µL Stop Solution to each well and recording the OD at 450 nm.

**Download our ELISA guide for technical hints, results, calculation, and troubleshooting tips:**

[www.abcam.com/protocols/the-complete-elisa-guide](http://www.abcam.com/protocols/the-complete-elisa-guide)

**For technical support contact information, visit:** [www.abcam.com/contactus](http://www.abcam.com/contactus)

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## Additional information

### ASSAY SPECIFICITY

This kit is designed for the quantification of human Laminin alpha 4/LAMA4. The standard protein in this kit is a C-terminal fragment representing approximately 20% of the full-length of human Laminin alpha 4/LAMA4.

Native signal was detected in serum and cell culture supernatant sample types.

Spiked protein experiments were used to validate serum, plasma (citrate), and plasma (heparin).

Urine, saliva, milk, CSF, cell extract, and tissue extract samples have not been tested with this kit.

This kit is incompatible with plasma (EDTA) samples.

Standard Curve Measurements			
Concentration (pg/mL)	O.D. 450 nm		Mean O.D.
	1	2	
0	0.040	0.040	0.040
39.06	0.070	0.069	0.069
78.13	0.102	0.102	0.102
156.3	0.162	0.158	0.160
312.5	0.280	0.296	0.288
625	0.581	0.592	0.587
1,250	1.320	1.265	1.292
2,500	3.105	3.048	3.077

### CROSS REACTIVITY

3,250 pg/mL of recombinant Human LAMA1, 3,250 pg/mL of recombinant Human LAMB2, and 3,250 pg/mL of recombinant Human LAMC2 were tested for cross reactivity. No cross reactivity was observed.

### INTERFERENCE

3,250 pg/mL of recombinant Human LAMA1, 3,250 pg/mL of recombinant Human LAMB2, and 3,250 pg/mL of recombinant Human LAMC2 were tested for interference with 3,250 pg/mL of recombinant Human LAMA4. No interference was observed.

### SPECIES REACTIVITY

Other species reactivity was determined by measuring 100% serum samples of various species, interpolating the protein concentrations from the human standard curve, and expressing the interpolated concentrations as a percentage of the protein concentration in human serum assayed at the same dilution.

No signal was observed for the following species: Rat, Cow

Reactivity < 3% was determined for the following species: Mouse

Reactivity was determined for the following species: Monkey (119%)

Other species reactivity not determined.

## CALCULATION

- Calculate the average absorbance value for the blank control (zero) standards. Subtract the average blank control standard absorbance value from all other absorbance values.
- Create a standard curve by plotting the average blank control subtracted absorbance value for each standard concentration (y-axis) against the target protein concentration (x-axis) of the standard. Use graphing software to draw the best smooth curve through these points to construct the standard curve.

△ Note: Most microplate reader software or graphing software will plot these values and fit a curve to the data. A four-parameter curve fit (4PL) is often the best choice; however, other algorithms (e.g., linear, semi-log, log/log, 4-parameter logistic) can also be tested to determine if it provides a better curve fit to the standard values.

- Determine the concentration of the target protein in the sample by interpolating the blank control subtracted absorbance values against the standard curve. Multiply the resulting value by the appropriate sample dilution factor, if used, to obtain the concentration of target protein in the sample.
- Samples generating absorbance values greater than that of the highest standard should be further diluted and reanalysed. Similarly, samples which measure at absorbance values less than that of the lowest standard should be retested in a less dilute form.

## TYPICAL DATA

Typical standard curve – data provided for demonstration purposes only. A new standard curve must be generated for each assay performed.

Table 1. Example of human Laminin alpha 4/LAMA4 standard curve in Sample Diluent NS. The Laminin alpha 4/LAMA4 standard curve was prepared as described in the Standard Preparation section. The table shows raw data values.

Standard Curve Measurements			
Concentration (pg/mL)	O.D. 450 nm		Mean O.D.
	1	2	
0	0.041	0.041	0.041
101.6	0.068	0.068	0.068
203.1	0.093	0.096	0.094
406.3	0.155	0.163	0.159
812.5	0.288	0.294	0.291
1,625	0.618	0.590	0.604
3,250	1.262	1.270	1.266
6,500	3.115	3.023	3.069

Table 2. Example of human Laminin alpha 4/LAMA4 standard curve in Sample Diluent 50BS. The Laminin alpha 4/LAMA4 standard curve was prepared as described in the Standard Preparation section. The table shows raw data values.

### TYPICAL SAMPLE VALUES

#### Sensitivity:

The minimal detectable dose (MDD) was determined by calculating the mean of zero standard replicates and adding 2 standard deviations then extrapolating the corresponding concentration.

Sample Diluent Buffer	N=	Minimal Detectable Dose
Sample Diluent NS	24	6.86 pg/mL
Sample Diluent 50BS	16	21.7 pg/mL

#### Recovery

Three concentrations of Laminin alpha 4/LAMA4 were spiked into the indicated biological matrix to evaluate signal recovery in the working range of the assay.

Sample Type	Average % Recovery	Range (%)
50% Human Serum	97	96 - 99
25% Plasma – Citrate	83	81 - 84
50% Plasma – Heparin	87	83 - 93
6.25% HUVEC Cell Culture Supernatant	101	94 - 105

#### Linearity of Dilution

Linearity of dilution is determined based on interpolated values from the standard curve. Linearity of dilution defines a sample concentration interval in which interpolated target concentrations are directly proportional to sample dilution.

Native Laminin alpha 4/LAMA4 was measured in the following biological samples in a 2-fold dilution series. Sample dilutions are made in Sample Diluent NS.

Dilution Factor	Interpolated value	50% HUVEC Cell Culture Supernatant
Undiluted	pg/mL	3,506.4
	% Expected value	100
2	pg/mL	1,835.7
	% Expected value	105
4	pg/mL	854.7
	% Expected value	98
8	pg/mL	388.8
	% Expected value	89
16	pg/mL	187.9
	% Expected value	86

Recombinant Laminin alpha 4/LAMA4 was spiked into the following biological samples and then diluted in a 2-fold dilution series. Sample dilutions are made in Sample Diluent 50BS.

Dilution Factor	Interpolated value	50% Human Serum	25% Human Plasma (Citrate)	50% Human Plasma (Heparin)
Undiluted	pg/mL	6,456.7	2,643.0	7,140.7
	% Expected value	100	100	100
2	pg/mL	3,166.7	1,204.8	3,215.9
	% Expected value	98	91	90
4	pg/mL	1,595.2	533.8	1,695.1
	% Expected value	99	81	95
8	pg/mL	734.4	281.2	787.1
	% Expected value	91	85	88
16	pg/mL	396.4	147.9	409.5
	% Expected value	98	90	92

#### Precision

Mean coefficient of variations of interpolated values of Laminin alpha 4/LAMA4 from a single concentration of 25% HUVEC cell culture supernatant in Sample Diluent NS within the working range of the assay.

	Intra-assay	Inter-assay
N=	8	3
CV (%)	3.36	3.20

Mean coefficient of variations of interpolated values of Laminin alpha 4/LAMA4 from a single concentration of 50% spiked human serum in Sample Diluent 50BS within the working range of the assay.

	Intra-assay	Inter-assay
N=	8	3
CV (%)	3.73	3.52

Download our ELISA guide for technical hints, results, calculation, and troubleshooting tips:

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For technical support contact information, visit: [www.abcam.com/contactus](http://www.abcam.com/contactus)

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## DIRECTIONS FOR 384-WELL PLATE FORMAT:

### Materials Supplied for 384-well Format

Item	Quantity	Storage Condition
Human Laminin alpha 4/LAMA4 Lyophilized Capture Antibody	1 Vial	+4°C
Human Laminin alpha 4/LAMA4 Detector Antibody 10X	600 µL	+4°C
Human Laminin alpha 4/LAMA4 Lyophilized Recombinant Protein	2 Vials	+4°C
Antibody Diluent 4BI	6 mL	+4°C
Sample Diluent 50BS	20 mL	+4°C
Sample Diluent NS	50 mL	+4°C
Wash Buffer PT 10X	20 mL	+4°C
TMB Development Solution	2 x 12 mL	+4°C
Stop Solution	2 x 12 mL	+4°C
SimpleStep Pre-Coated 384-Well Microplate	384 wells	+4°C
Plate Seal	1	+4°C

### Materials Required, Not Supplied

These materials are not included in the kit, but will be required to successfully utilize this assay:

Microplate reader capable of measuring absorbance at 450 or 600 nm in a 384-well plate.

Deionized water.

Multi- and single-channel pipettes.

Tubes for standard dilution.

Plate shaker for all incubation steps.

Optional: Phenylmethylsulfonyl Fluoride (PMSF) (or other protease inhibitors).

Optional: Automated liquid handler.

### Reagent Preparation

Equilibrate all reagents to room temperature (18-25°C) prior to use. The kit contains enough reagents for one full plate. The sample volumes below are sufficient for running all 384 wells; adjust volumes as needed for the number of samples and dilution scheme for your experiment.

Prepare only as much reagent as is needed on the day of the experiment. Capture and Detector Antibodies have only been tested for stability in the provided 10X formulations.

Sample Diluent 50BS may contain precipitate, this is normal. If precipitate is not dissolved by gentle mixing, the precipitate may be dissolved by gentle warming and mixing at 37°C for 10 minutes. If precipitate remains, gently spin down and avoid visible precipitates when pipetting.

**1X Wash Buffer PT:** Prepare 1X Wash Buffer PT by diluting Wash Buffer PT 10X with deionized water. To make 50 mL 1X Wash Buffer PT combine 5 mL Wash Buffer PT 10X with 45 mL deionized water. Mix thoroughly and gently.

**10X Capture Antibody:** To reconstitute the lyophilized capture antibody, centrifuge at 10,000 g for 2 minutes. Add 660 µL of Sample Diluent NS, let sit at room temperature for 10 minutes and

resuspend well by inverting the tube by hand and gently pipetting. Unused reconstituted antibody can be stored frozen at -20°C. Avoid repeated freeze-thaw cycles.

**Antibody Cocktail:** Prepare Antibody Cocktail by diluting the capture and detector antibodies in Antibody Diluent 4BI. To make 6 mL of the Antibody Cocktail combine 600 µL 10X Capture Antibody and 600 µL 10X Detector Antibody with 4.8 mL Antibody Diluent 4BI. Mix thoroughly and gently.

### Standard Preparation

Always prepare a fresh set of standards for every use. Discard working standard dilutions after use as they do not store well. The following section describes the preparation of a standard curve for duplicate measurements (recommended).

**Standard Preparation:** Always prepare a fresh set of standards for every use. Discard working standard dilutions after use as they do not store well. The following section describes the preparation of a standard curve for duplicate measurements (recommended).

### For Cell Culture Supernatant Samples:

1. Reconstitute the Laminin alpha 4/LAMA4 standard sample by adding the volume of Sample Diluent NS indicated on the protein vial label. Hold at room temperature for 10 minutes. Mix thoroughly and gently. This is the 72 ng/mL **Stock Standard** Solution.
2. Label eight tubes, Standards 1 – 8.
3. Add 278 µL of Sample Diluent NS into tube number 1 and 75 µL of Sample Diluent NS into numbers 2 – 8.
4. Use the **Stock Standard** to prepare the following dilution series. Standard #8 contains no protein and is the Blank control

Standard #	Dilution Sample	Volume to Dilute (µL)	Volume of Diluent (µL)	Starting Conc. (pg/mL)	Final Conc. (pg/mL)
1	<b>Stock Standard</b>	10	278	72,000	2,500
2	Standard#1	75	75	2,500	1,250
3	Standard#2	75	75	1,250	625
4	Standard#3	75	75	625	312.5
5	Standard#4	75	75	312.5	156.3
6	Standard#5	75	75	156.3	78.13
7	Standard#6	75	75	78.13	39.06
8	Blank Control	0	75	0	0

### For Serum, Plasma – Citrate, and Plasma – Heparin Samples:

1. Reconstitute the Laminin alpha 4/LAMA4 standard sample by adding the volume of Sample Diluent 50BS indicated on the protein vial label. Hold at room temperature for 10 minutes. Mix thoroughly and gently. This is the 72 ng/mL Stock Standard Solution.
2. Label eight tubes, Standards 1 – 8.
3. Add 196.5 µL of Sample Diluent 50BS into tube number 1 and 75 µL of Sample Diluent 50BS into numbers 2 – 8.
4. Use the Stock Standard to prepare the following dilution series. Standard #8 contains no protein and is the Blank control:

Standard #	Dilution Sample	Volume to Dilute (µL)	Volume of Diluent (µL)	Starting Conc. (pg/mL)	Final Conc. (pg/mL)
1	Stock Standard	19.5	196.5	72,000	6,500
2	Standard#1	75	75	6,500	3,250
3	Standard#2	75	75	3,250	1,625
4	Standard#3	75	75	1,625	812.5
5	Standard#4	75	75	812.5	406.3
6	Standard#5	75	75	406.3	203.1
7	Standard#6	75	75	203.1	101.6
8	Blank Control	0	75	0	0

### Plate Preparation

The 384-well plate included with this kit are supplied ready to use. It is not necessary to rinse the plate prior to adding reagents.

For each assay performed, a minimum of two wells must be used as the zero control.

For statistical reasons, we recommend each sample should be assayed with a minimum of two replicates (duplicates).

Differences in well absorbance or "edge effects" have not been observed with this assay.

### Assay Procedure for 384-well Plate Format

Equilibrate all materials and prepared reagents to room temperature prior to use. We recommend that you assay all standards, controls, and samples in duplicate.

1. Prepare all reagents, working standards, and samples as directed in the previous sections.
2. Add 12.5 µL of all sample or standard to appropriate wells.
3. Add 12.5 µL of the Antibody Cocktail to each well.
4. Seal the plate and incubate for 1 hour at room temperature on a plate shaker set to 700 rpm.
5. Wash each well with 3 x 100 µL 1X Wash Buffer PT. Wash by aspirating or decanting from wells then dispensing 100 µL 1X Wash Buffer PT into each well. Wash Buffer PT should remain in wells for at least 10 seconds. Complete removal of liquid at each step is essential for good performance. After the last wash invert the plate and tap gently against clean paper towels to remove excess liquid.
6. Add 25 µL of TMB Development Solution to each well and incubate for 10 minutes in the dark on a plate shaker set to 700 rpm.  
*Given variability in laboratory environmental conditions, optimal incubation time may vary between 5 and 20 minutes.*  
**Note:** The addition of Stop Solution will change the color from blue to yellow and enhance the signal intensity about 3X. To avoid signal saturation, proceed to the next step before the high concentration of the standard reaches a blue color of O.D.600 equal to 1.0.
7. Add 25 µL of Stop Solution to each well. Shake plate on a plate shaker for 1 minute to mix. Record the OD at 450 nm. This is an endpoint reading. Proper mixing of the Stop Solution is required for proper measurement.
8. Alternative to 6 – 7: Instead of the endpoint reading at 450 nm, record the development of TMB Substrate kinetically. Immediately after addition of TMB Development Solution begin recording the blue color development with elapsed time in the microplate reader prepared with the following settings:

Mode	Kinetic
Wavelength:	600 nm
Time:	up to 20 min
Interval:	20 sec – 1 min
Shaking:	Shake between readings

**Note** that an endpoint reading can also be recorded at the completion of the kinetic read by adding 25 µL Stop Solution to each well and recording the OD at 450 nm.

Download our ELISA guide for technical hints, results, calculation, and troubleshooting tips:

[www.abcam.com/protocols/the-complete-elisa-guide](http://www.abcam.com/protocols/the-complete-elisa-guide)

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