ab133021
Prostaglandin E2 ELISA Kit

For quantitative detection of Prostaglandin E2 (PGE$_2$) in serum, saliva, urine and tissue culture media.

This product is for research use only and is not intended for diagnostic use.
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1. Overview

Abcam’s Prostaglandin E2 (PGE\textsubscript{2}) \textit{in vitro} competitive ELISA (Enzyme-Linked Immunosorbent Assay) kit is designed for the accurate quantitative measurement of Prostaglandin E2 in serum, saliva, urine and tissue culture media and other biological fluids.

A mouse IgG antibody has been precoated onto 96-well plates. Standards or test samples are added to the wells, along with an alkaline phosphatase (AP) conjugated-Prostaglandin E2 antibody. After incubation, the excess reagents are washed away and pNpp substrate is added and is catalyzed by AP to produce a yellow color. The intensity of the yellow coloration is inversely proportional to the amount of Prostaglandin E2 captured in the plate.

Prostaglandin E2 is formed in a variety of cells from PGH\textsubscript{2}, which itself is synthesized from arachidonic acid by the enzyme prostaglandin synthetase. Prostaglandin E2 has been shown to have a number of biological actions, including vasodilation, both anti- and proinflammatory action, modulation of sleep/wake cycles, and facilitation of the replication of human immunodeficiency virus. It elevates cAMP levels, stimulates bone resorption, and has thermoregulatory effects. It has been shown to be a regulator of sodium excretion and renal hemodynamics.
2. Protocol Summary

Prepare all reagents, samples, and standards as instructed

↓

Add standards and samples to appropriate wells.

↓

Add prepared labeled AP-conjugate to appropriate wells.

↓

Add PGE\textsubscript{2} antibody to appropriate wells. Incubate at room temperature.

↓

Add pNpp substrate to each well. Incubate at room temperature. Add Stop Solution to each well. Read immediately.
3. Precautions

Please read these instructions carefully prior to beginning the assay.

- All kit components have been formulated and quality control tested to function successfully as a kit.
- We understand that, occasionally, experimental protocols might need to be modified to meet unique experimental circumstances. However, we cannot guarantee the performance of the product outside the conditions detailed in this protocol booklet.
- Reagents should be treated as possible mutagens and should be handled with care and disposed of properly. Please review the Safety Datasheet (SDS) provided with the product for information on the specific components.
- Observe good laboratory practices. Gloves, lab coat, and protective eyewear should always be worn. Never pipet by mouth. Do not eat, drink or smoke in the laboratory areas.
- All biological materials should be treated as potentially hazardous and handled as such. They should be disposed of in accordance with established safety procedures.

4. Storage and Stability

Store kit at +4°C immediately upon receipt, apart from the Alkaline Phosphatase Conjugate and Standard, which should be stored at -20°C. Avoid multiple freeze-thaw cycles. Kit has a storage time of 1 year from receipt, providing components have not been reconstituted.

Refer to list of materials supplied for storage conditions of individual components. Observe the storage conditions for individual prepared components in the Materials Supplied section.
5. Limitations

- Assay kit intended for research use only. Not for use in diagnostic procedures.
- Do not mix or substitute reagents or materials from other kit lots or vendors. Kits are QC tested as a set of components and performance cannot be guaranteed if utilized separately or substituted.

6. Materials Supplied

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Storage Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goat anti-mouse IgG Microplate (12 x 8 wells)</td>
<td>96 wells</td>
<td>+4°C</td>
</tr>
<tr>
<td>PGE$_2$ Alkaline Phosphatase Conjugate</td>
<td>5 mL</td>
<td>-20°C</td>
</tr>
<tr>
<td>PGE$_2$ Antibody</td>
<td>5 mL</td>
<td>+4°C</td>
</tr>
<tr>
<td>Prostaglandin E2 Standard</td>
<td>500 µL</td>
<td>-20°C</td>
</tr>
<tr>
<td>Assay Buffer</td>
<td>27 mL</td>
<td>+4°C</td>
</tr>
<tr>
<td>20X Wash Buffer Concentrate</td>
<td>27 mL</td>
<td>+4°C</td>
</tr>
<tr>
<td>pNpp Substrate</td>
<td>20 mL</td>
<td>+4°C</td>
</tr>
<tr>
<td>Stop Solution</td>
<td>5 mL</td>
<td>+4°C</td>
</tr>
</tbody>
</table>
7. Materials Required, Not Supplied

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

- Standard microplate reader - capable of reading at 405 nm, preferably with correction between 570 and 590 nm.
- Automated plate washer (optional).
- Adjustable pipettes and pipette tips. Multichannel pipettes are recommended when large sample sets are being analyzed.
- Eppendorf tubes.
- Microplate Shaker.
- Absorbent paper for blotting.
- 200 mg C18 Reverse Phase Extraction Columns (only required for extraction of samples containing low levels of PGE₂).
- 2M hydrochloric acid (only required for extraction of samples containing low levels of PGE₂).
- Deionized water.
- Ethanol.
- Hexane.
- Ethyl acetate.
8. Technical Hints

- This kit is sold based on number of tests. A ‘test’ simply refers to a single assay well. The number of wells that contain sample, control or standard will vary by product. Review the protocol completely to confirm this kit meets your requirements. Please contact our Technical Support staff with any questions.
- Standards can be made up in either glass or plastic tubes.
- Pre-rinse the pipette tip with the reagent, use fresh pipette tips for each sample, standard and reagent.
- Pipette standards and samples to the bottom of the wells.
- Add the reagents to the side of the well to avoid contamination.
- This kit uses break-apart microtiter strips, which allow the user to measure as many samples as desired. Unused wells must be kept desiccated at 4°C in the sealed bag provided. The wells should be used in the frame provided.
- Care must be taken to minimize contamination by endogenous alkaline phosphatase. Contaminating alkaline phosphatase activity, especially in the substrate solution, may lead to high blanks. Care should be taken not to touch pipet tips and other items that are used in the assay with bare hands.
- Prior to addition of substrate, ensure that there is no residual wash buffer in the wells. Any remaining wash buffer may cause variation in assay results.
- Stop Solution is a solution of trisodium phosphate. This solution is caustic; care should be taken in use.
- The activity of the alkaline phosphatase conjugate is dependent on the presence of Mg\(^{2+}\) and Zn\(^{2+}\) ions. The activity of the conjugate is affected by concentrations of chelators (>10 mM) such as EDTA and EGTA.
- The Prostaglandin E2 Standard provided, is supplied in ethanolic buffer at a pH optimized to maintain PGE\(_2\) integrity. Care should be taken handling this material because of the known and unknown effects of prostaglandin.
9. Reagent Preparation

- Equilibrate all reagents to room temperature (18-25°C) prior to use. The kit contains enough reagents for 96 wells.
- Prepare only as much reagent as is needed on the day of the experiment.

9.1 \textbf{PGE}_2 \textbf{Alkaline Phosphatase Conjugate}

Allow the Prostaglandin E2 Alkaline Phosphatase Conjugate to equilibrate to room temperature. Any unused conjugate should be aliquoted and stored at -20°C.

9.2 \textbf{1X Wash Buffer}

Prepare the 1X Wash Buffer by diluting 5 mL of the 20X Wash Buffer Concentrate in 95 mL of deionized water. Mix thoroughly and gently. 1X Wash buffer can be stored at room temperature for three months, or until the expiration date of the kit, whichever is earlier.
10. Standard Preparation

- Always prepare a fresh set of standards for every use.
- Prepare serially diluted standards immediately prior to use.
- Diluted standards should be used within 60 minutes of preparation.
- The following section describes the preparation of a standard curve for duplicate measurements (recommended).

10.1 Allow the 50,000 pg/mL PGE$_2$ Stock Standard solution to warm to room temperature. Any unused Stock Standard solution should be stored at -20°C.

10.2 Label eight tubes #1 - #8.

10.3 Add 500 μL appropriate* diluent (Assay Buffer or tissue culture media) into tubes #2–#7:

*For plasma, serum and urine samples use Assay Buffer to dilute the standard.

*For cell culture supernatant samples use tissue culture media to dilute the standard.

10.4 Prepare a 2,500 pg/mL Standard 1 by adding 50 μL of the 50,000 pg/mL Stock Standard to 950 μL to tube #1. Mix thoroughly and gently.

10.5 Prepare Standard 2 by transferring 500 μL from Standard 1 to tube #2. Mix thoroughly and gently.

10.6 Prepare Standard 3 by transferring 500 μL from Standard 2 to tube #3. Mix thoroughly and gently.

10.7 Using the table below as a guide, repeat for tubes #4 through #7.
<table>
<thead>
<tr>
<th>Standard #</th>
<th>Volume to dilute (µL)</th>
<th>Volume Diluent (µL)</th>
<th>Starting Conc. (pg/mL)</th>
<th>Final Conc. (pg/mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>50 µL Stock</td>
<td>950</td>
<td>50,000</td>
<td>2,500</td>
</tr>
<tr>
<td>2</td>
<td>500 µL Standard #1</td>
<td>500</td>
<td>2,500</td>
<td>1,250</td>
</tr>
<tr>
<td>3</td>
<td>500 µL Standard #2</td>
<td>500</td>
<td>1,250</td>
<td>625</td>
</tr>
<tr>
<td>4</td>
<td>500 µL Standard #3</td>
<td>500</td>
<td>625</td>
<td>313</td>
</tr>
<tr>
<td>5</td>
<td>500 µL Standard #4</td>
<td>500</td>
<td>313</td>
<td>156</td>
</tr>
<tr>
<td>6</td>
<td>500 µL Standard #5</td>
<td>500</td>
<td>156</td>
<td>78.1</td>
</tr>
<tr>
<td>7</td>
<td>500 µL Standard #6</td>
<td>500</td>
<td>78.1</td>
<td>39.1</td>
</tr>
</tbody>
</table>
11. Sample Preparation

The PGE₂ kit is compatible with PGE₂ samples in a wide range of matrices after dilution in Assay Buffer. However, the end user must verify that the recommended dilutions are appropriate for their samples. The kit is unsuitable for mouse serum as samples containing mouse IgG may interfere with the assay.

Samples in the majority of tissue culture media, including those containing fetal bovine serum, can also be read in the assay, provided the standards have been diluted in tissue culture media instead of Assay Buffer. There will be a small change in binding associated with running the standards and samples in media. Users should only use standard curves generated in media or Assay Buffer to calculate concentrations of PGE₂ in the appropriate matrix.

For tissue, urine and plasma samples, prostaglandin synthetase inhibitors such as indomethacin or meclofenamic acid at concentrations up to 10 μg/mL should be added to either the tissue homogenate or urine and plasma samples. Some samples normally have very low levels of PGE₂ present and extraction may be necessary for accurate measurement. A suitable extraction procedure is outlined below:

11.1 Acidify the plasma, urine or tissue homogenate by addition of 2M HCl to pH of 3.5. Approximately 50 μL of HCl will be needed per mL of plasma, urine or tissue homogenate. Allow to sit at 4°C for 15 minutes. Centrifuge samples in a micro-centrifuge for 2 minutes to remove any precipitate.

11.2 Prepare the C18 reverse phase column (see Section 6) by washing with 10 mL of ethanol followed by 10 mL of deionized water.

11.3 Apply the sample under a slight positive pressure to obtain a flow rate of about 0.5 mL/minute. Wash the column with 10 mL of water, followed by 10 mL of 15% ethanol, and finally 10 mL hexane. Elute the sample from the column by addition of 10 mL ethyl acetate.

11.4 If analysis is to be carried out immediately, evaporate samples under a stream of nitrogen. Add at least 250 μL of Assay Buffer to the dried sample. Mix well and hold at room temperature for 5 minutes. Repeat twice more. If analysis is to be delayed, store samples as the eluted ethyl acetate solutions at -80°C until the
immunoassay is to be run. Evaporate the organic solvent under a stream of nitrogen prior to running assay and reconstitute as above.

Store samples to be assayed within 24 hours at 2 - 8°C. For long-term storage, aliquot and freeze samples at -20°C. Avoid repeated freeze-thaw cycles.
12. 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 well strips should be returned to the plate packet and stored at 4°C.
- For statistical reasons, we recommend each sample should be assayed with a minimum of two replicates (duplicates).
- Well effects have not been observed with this assay.

**Recommended plate layout**

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>B_&lt;sub&gt;s&lt;/sub&gt;</td>
<td>Std 1</td>
<td>Std 5</td>
<td>Sample 2</td>
</tr>
<tr>
<td>B</td>
<td>B_&lt;sub&gt;s&lt;/sub&gt;</td>
<td>Std 1</td>
<td>Std 5</td>
<td>Sample 2</td>
</tr>
<tr>
<td>C</td>
<td>TA</td>
<td>Std 2</td>
<td>Std 6</td>
<td>etc</td>
</tr>
<tr>
<td>D</td>
<td>TA</td>
<td>Std 2</td>
<td>Std 6</td>
<td>etc</td>
</tr>
<tr>
<td>E</td>
<td>NSB</td>
<td>Std 3</td>
<td>Std 7</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>NSB</td>
<td>Std 3</td>
<td>Std 7</td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>B_&lt;sub&gt;0&lt;/sub&gt;</td>
<td>Std 4</td>
<td>Sample 1</td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>B_&lt;sub&gt;0&lt;/sub&gt;</td>
<td>Std 4</td>
<td>Sample 1</td>
<td></td>
</tr>
</tbody>
</table>

Plate layout shows controls, blanks and standards required for each assay. Use additional strips of wells to assay all your samples.

**Key:**
- B_<sub>s</sub> = Blank; contains substrate only.
- TA = Total Activity; contains conjugate (5 µL) and substrate.
- NSB = Non-specific binding; contains standard diluent, assay buffer, conjugate and substrate.
- B_<sub>0</sub> = 0 pg/mL standard; contains assay buffer, conjugate, antibody and substrate.
13. 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.
- Refer to the recommended plate layout in Section 12 before proceeding with the assay.

13.1 Add 100 µL appropriate diluent* into the NSB (non-specific binding) wells. (*Use the same diluent used to prepare standards in section 10, either Assay Buffer or Tissue Culture Media).

13.2 Add 100 µL appropriate diluent (Assay Buffer or tissue culture media) into the B0 (0 pg/mL standard) wells.

13.3 Add 100 µL of prepared standards and 100 µL diluted samples to appropriate wells.

13.4 Add 50 µL of Assay Buffer into the NSB wells only.

13.5 Add 50 µL of PGE₂ Alkaline Phosphatase Conjugate (blue) into NSB, B0, standard and sample wells, i.e. not the Total Activity (TA) and Bs wells.

13.6 Add 50 µL of PGE₂ Antibody (yellow) into B0, standard and sample wells, i.e. not Bs, TA and NSB wells.

13.7 Note: Every well used should be green except the NSB wells which should be blue. Bs and TA wells are empty at this point and have no color.

13.8 Incubate the plate at room temperature on a plate shaker for 2 hours at ~500 rpm. The plate may be covered with the plate sealer provided.

13.9 Empty the contents of the wells and wash by adding 400 µL of 1X Wash Buffer to every well. Repeat the wash 2 more times for a total of 3 washes. After the final wash, empty or aspirate the wells, and firmly tap the plate on a lint free paper towel to remove any remaining wash buffer.

13.10 Add 5 µL of the PGE₂ Alkaline Phosphatase Conjugate to the TA wells only.

13.11 Add 200 µL of the pNpp Substrate solution to all wells. Incubate at room temperature for 45 minutes without shaking.

13.12 Add 50 µL Stop Solution to all wells. The plate should be read immediately.

13.13 After blanking the plate reader against the Bs (blank) wells, read optical density at 405 nm, preferably with correction between
570 and 590 nm. If the plate reader is not able to be blanked against the Bs wells, manually subtract the mean optical density of the blank wells from all readings.
14. Calculations

14.1 Calculate the average net absorbance measurement (Average Net OD) for each standard and sample by subtracting the average NSB absorbance measurement (Average NSB OD) from the average absorbance measurement (Average Bound OD) for each standard and sample.

\[
\text{Average Net OD} = \text{Average Bound OD} - \text{Average NSB OD}
\]

14.2 Calculate the binding of each pair of standard wells as a percentage of the maximum binding wells (B₀), using the following formula:

\[
\text{Percent Bound} = \left( \frac{\text{Average Net OD}}{\text{Average Net B₀ OD}} \right) \times 100
\]

14.3 Plot the Percent Bound (B/B₀) and the net OD versus concentration of PGE₂ for the standards. The concentration of PGE₂ in the unknowns can be determined by interpolation of net OD values.

A four parameter algorithm (4PL) provides the best fit, though other equations can be examined to see which provides the most accurate (e.g. linear, semi-log, log/log, 4 parameter logistic). Interpolate protein concentrations for unknown samples from the standard curve plotted.

Samples producing signals greater than that of the highest standard should be further diluted and reanalyzed, then multiplying the concentration found by the appropriate dilution factor.
15. Typical Data

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

![Typical Standard Curve](image)

### Table 1

<table>
<thead>
<tr>
<th>Sample</th>
<th>Mean OD (-B&lt;sub&gt;s&lt;/sub&gt;)</th>
<th>% Bound</th>
<th>Concentration (pg/mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>B&lt;sub&gt;s&lt;/sub&gt;</td>
<td>0.087</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TA</td>
<td>1.22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NSB</td>
<td>0.002</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>B&lt;sub&gt;0&lt;/sub&gt;</td>
<td>0.982</td>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td>Standard 1</td>
<td>0.074</td>
<td>7.3</td>
<td>2,500</td>
</tr>
<tr>
<td>Standard 2</td>
<td>0.121</td>
<td>12.1</td>
<td>1,250</td>
</tr>
<tr>
<td>Standard 3</td>
<td>0.205</td>
<td>20.7</td>
<td>625</td>
</tr>
<tr>
<td>Standard 4</td>
<td>0.337</td>
<td>34.2</td>
<td>313</td>
</tr>
<tr>
<td>Standard 5</td>
<td>0.507</td>
<td>51.5</td>
<td>156</td>
</tr>
<tr>
<td>Standard 6</td>
<td>0.663</td>
<td>67.4</td>
<td>78.1</td>
</tr>
<tr>
<td>Standard 7</td>
<td>0.804</td>
<td>81.8</td>
<td>39.1</td>
</tr>
<tr>
<td>Unknown 1</td>
<td>0.299</td>
<td>30.30</td>
<td>375.3</td>
</tr>
<tr>
<td>Unknown 2</td>
<td>0.61</td>
<td>62.00</td>
<td>100.7</td>
</tr>
</tbody>
</table>

**Figure 1.** Example of PGE<sub>2</sub> standard curve.
TYPICAL QUALITY CONTROL PARAMETERS

Total Activity Added = $1.220 \times 10 = 12.20$

%NSB = 0.02%

%Bo/TA = 8.04%

Quality of Fit = 1.000 (Calculated from 4 parameter logistic curve fit)

20% Intercept = 664 pg/mL

50% Intercept = 162 pg/mL

80% Intercept = 43 pg/mL
16. Typical Sample Values

SENSITIVITY –
The sensitivity, minimum detectable dose of PGE₂ using this ELISA kit was found to be 13.4 pg/mL. This was determined by the average optical density of the 0 pg/mL standard and comparing to the average optical density for standard #7. The detection limit was determined as the concentration of PGE₂ measured at two standard deviations from the zero along the standard curve.

SAMPLE RECOVERY –
Recovery was determined by PGE₂ into tissue culture media, Human saliva, serum, and urine. Mean recoveries are as follows:

<table>
<thead>
<tr>
<th>Sample Type</th>
<th>Average % Recovery</th>
<th>Recommended Dilution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tissue Culture Media</td>
<td>104.4</td>
<td>None</td>
</tr>
<tr>
<td>Human Saliva</td>
<td>123.3</td>
<td>1:10</td>
</tr>
<tr>
<td>Human Urine</td>
<td>108.9</td>
<td>1:10</td>
</tr>
<tr>
<td>Human Male Serum</td>
<td>126.1</td>
<td>1:10</td>
</tr>
<tr>
<td>Human Female Serum</td>
<td>113.7</td>
<td>1:10</td>
</tr>
<tr>
<td>Human Whole Blood</td>
<td>101.2</td>
<td>1:10</td>
</tr>
</tbody>
</table>
LINEARITY OF DILUTION –
A sample containing 50,000 pg/mL PGE$_2$ was diluted 6 times 1:2 in the kit Assay Buffer and measured in the assay. The data was plotted graphically as actual PGE2 concentration versus measured PGE2 concentration.

The line obtained had a slope of 1.1610 and a correlation coefficient of 1.000.

PRECISION –

Intra-Assay

<table>
<thead>
<tr>
<th></th>
<th>PGE$_2$ (pg/mL)</th>
<th>Intra-Assay %CV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>116</td>
<td>8.9</td>
</tr>
<tr>
<td>Medium</td>
<td>492</td>
<td>5.8</td>
</tr>
<tr>
<td>High</td>
<td>2,416</td>
<td>17.5</td>
</tr>
</tbody>
</table>

Inter-Assay

<table>
<thead>
<tr>
<th></th>
<th>PGE$_2$ (pg/mL)</th>
<th>Inter-Assay %CV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>111</td>
<td>3.0</td>
</tr>
<tr>
<td>Medium</td>
<td>419</td>
<td>5.1</td>
</tr>
<tr>
<td>High</td>
<td>1,902</td>
<td>3.9</td>
</tr>
</tbody>
</table>
17. Assay Specificity

The cross reaction of the antibody calculated at 50% is:

<table>
<thead>
<tr>
<th>Compound</th>
<th>Cross Reaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>PGE$_2$</td>
<td>100 %</td>
</tr>
<tr>
<td>PGE$_1$</td>
<td>70 %</td>
</tr>
<tr>
<td>PGE$_3$</td>
<td>16.3 %</td>
</tr>
<tr>
<td>PGF$_1$ alpha</td>
<td>1.4 %</td>
</tr>
<tr>
<td>PGF$_2$ alpha</td>
<td>0.7 %</td>
</tr>
<tr>
<td>6-keto-PGF$_1$ alpha</td>
<td>0.6 %</td>
</tr>
<tr>
<td>PGA$_2$</td>
<td>0.1 %</td>
</tr>
<tr>
<td>PGB$_1$</td>
<td>0.1 %</td>
</tr>
<tr>
<td>13,14-dihydro-15-keto-PGF$_2$ alpha</td>
<td>&lt;0.1 %</td>
</tr>
<tr>
<td>6,15-keto-13,14-dihydro-PGF$_1$ alpha</td>
<td>&lt;0.1 %</td>
</tr>
<tr>
<td>Thromboxane B$_2$</td>
<td>&lt;0.1 %</td>
</tr>
<tr>
<td>2-Arachidonoylglycerol</td>
<td>&lt;0.1 %</td>
</tr>
<tr>
<td>Anandamide</td>
<td>&lt;0.1 %</td>
</tr>
<tr>
<td>PGD$_2$</td>
<td>&lt;0.1 %</td>
</tr>
<tr>
<td>Arachadonic Acid</td>
<td>&lt;0.1 %</td>
</tr>
</tbody>
</table>

Please contact our Technical Support team for more information.
18. Troubleshooting

<table>
<thead>
<tr>
<th>Problem</th>
<th>Reason</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor standard curve</td>
<td>Inaccurate pipetting</td>
<td>Check pipettes</td>
</tr>
<tr>
<td></td>
<td>Improper standards dilution</td>
<td>Prior to opening, briefly spin the stock standard tube and dissolve the powder thoroughly by gentle mixing</td>
</tr>
<tr>
<td>Low Signal</td>
<td>Incubation times too brief</td>
<td>Ensure sufficient incubation times; change to overnight standard/sample incubation</td>
</tr>
<tr>
<td></td>
<td>Inadequate reagent volumes or improper dilution</td>
<td>Check pipettes and ensure correct preparation</td>
</tr>
<tr>
<td>Samples give higher value than the highest standard</td>
<td>Starting sample concentration is too high.</td>
<td>Dilute the specimens and repeat the assay</td>
</tr>
<tr>
<td>Large CV</td>
<td>Plate is insufficiently washed</td>
<td>Review manual for proper wash technique. If using a plate washer, check all ports for obstructions</td>
</tr>
<tr>
<td></td>
<td>Contaminated wash buffer</td>
<td>Prepare fresh wash buffer</td>
</tr>
<tr>
<td>Low sensitivity</td>
<td>Improper storage of the kit</td>
<td>Store the all components as directed.</td>
</tr>
</tbody>
</table>
19. Notes
Technical Support

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Austria
wissenschaftlicherdienst@abcam.com | 019-288-259

France
supportscientifique@abcam.com | 01.46.94.62.96

Germany
wissenschaftlicherdienst@abcam.com | 030-896-779-154

Spain
soportecientifico@abcam.com | 91-114-65-60

Switzerland
technical@abcam.com

UK, EU and ROW
technical@abcam.com | +44(0)1223-696000

Canada
c.ca.technical@abcam.com | 877-749-8807

US and Latin America
us.technical@abcam.com | 888-772-2226

Asia Pacific
hk.technical@abcam.com | (852) 2603-6823

China
cn.technical@abcam.com | 400 921 0189 / +86 21 2070 0500

Japan
technical@abcam.co.jp | +81-(0)3-6231-0940

Singapore
sg.technical@abcam.com | 800 188-5244

Australia
au.technical@abcam.com | +61-(0)3-8652-1450

New Zealand
nz.technical@abcam.com | +64-(0)9-909-7829