

AffinityImmuno®

Human IgG antibodies to PEG ELISA

Catalog EL-141-PEG-hIGG

For the qualitative determination
of anti PEG IgG antibodies in
human serum and plasma.

Introduction

Polyethylene glycol (PEG) chains are often used to modify therapeutic biologic agents in order to prolong the circulating half-life of the modified protein. It has been reported that repeat exposure to PEGylated proteins can induce anti-PEG antibodies. Anti-PEG antibodies can result in rapid clearance of PEGylated protein (accelerated blood clearance, or ABC, phenomenon).

Principle of the assay

This immunogenicity assay uses the direct ELISA technique. The supplied streptavidin precoated 96 well microplate is incubated with biotinylated PEG (5KDa). After washing, quality control and test samples are pipetted into the appropriate wells. Anti-PEG antibodies bind the immobilized PEG. After washing, detection antibody (anti-human IgG Peroxidase) is added. Any unbound antibody-enzyme reagent is removed with a final wash and a substrate solution is added to the wells for color development. Color development is proportional to the amount of anti-PEG IgG.

| Each kit includes: | Units |
|---|--------------------------------|
| Coated microtiter plate, 96 wells (1x8 strips) | 1 |
| QC Samples – Serum containing various levels of anti-PEG IgG antibody | QC1 (250µl) anti-PEG 1000ng/ml |
| | QC2 (250µl) anti-PEG 500ng/ml |
| | QC3 (250µl) anti-PEG 250ng/ml |
| | QC4 (250µl) anti-PEG 125ng/ml |
| | QC5 (250µl) anti-PEG 62.5ng/ml |
| | QC6 (250µl) anti-PEG 0ng/ml |
| Do not mix or substitute reagents with those from other lots. | |

| Each kit includes: | Units |
|--|-------|
| 10X wash buffer | 25ml |
| Assay buffer | 50ml |
| 500X biotinylated PEG (5KDa) | 50µl |
| 1000X detection reagent | 17µl |
| TMB | 12ml |
| TMB stop solution | 12ml |
| Plate sealers | 3 |
| 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 wash buffer concentrate with ultra-pure water 1/10 before use (for example add 25mL concentrate to 225mL ultra-pure water). Mix well.
- 2. Biotinylated PEG (1X) Preparation:** Dilute Biotinylated PEG with assay buffer 1/500 before use (for examples add 24µl Biotinylated PEG to 12ml of assay buffer). Mix well.
- 3. Detection Reagent (1X) Preparation:** Dilute detection reagent with assay buffer 1/1000 before use (for example add 12µl concentrate to 12ml of assay buffer). Mix well.
- 4. Sample and QC preparation: *** NEW STEP ***** Diluted test samples and QC samples 1/8 with assay buffer before use (for example add 30µl of test sample or QC sample to 210µl assay buffer). Mix well

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. Remove kit from -20°C and allow precoated plate to acclimate to room temperature for 15-20 minutes. Thaw all other components on ice.
2. Apply 100µL diluted biotinylated PEG to each well of the plate. Incubate for 15 minutes at room temperature on a plate shaker at approximately 300rpm.
3. Discard the content of the plate and wash the wells 3x with 200µL wash buffer per well.
4. Add 100µL diluted calibrators and diluted QC samples to appropriate wells on the plate. Incubate for 1 hour at room temperature on a plate shaker at approximately 300rpm.
5. Discard the content of the plate and wash the wells 3x with 200µL wash buffer per well.
6. Add 100µL detection reagent to all wells. Incubate for 1 hour at room temperature on a plate shaker at approx 300rpm.
7. Discard the content of the plate and wash the wells 3x with 200µL wash buffer per well.

8. Add 100µL of TMB to each well on plate. Incubate for 5-8 minutes at room temperature protected from light.
9. Add 100µL of TMB stop solution to each well on plate. Mix by gently tapping the side of the plate.
10. Determine absorbance with a microplate reader at 450nm against 620nm.

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.

The concentration of the unknowns can be read directly from this standard curve using the absorbance value for each sample.

2. We recommend each lab develop their own statistical cutpoint using methodologies as described by G. Shankar, et al. (2008). (Recommendations for the validation of immunoassays used for detection of host antibodies against biotechnology products. J. Pharmaceutical and Biomedical Analysis 48:1267–1281).
3. Any sample reading greater than the highest standard should be diluted appropriately with assay buffer 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: The precision was determined by analyzing samples spiked at 250ng/mL anti-PEG antibody in 6 replicates on 6 different occasions. Intra-assay coefficient of variation (CV) < 10%. Inter-assay CV < 10%.

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.

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.