



PAV05-EN.01

Anti-AAV5 Antibody ELISA Kit

Pack Size: 96 tests

Catalog Number: PAV-A005

IMPORTANT: Please carefully read this manual before performing your experiment.

For Research Use Only. Not For Use in Diagnostic or Therapeutic Procedures

INTENDED USE

Anti-AAV5 Antibody ELISA Kit is developed for the detection of anti-AAV5 antibodies in serum. It can be used for immunogenicity studies and enrollment screening. It is intended for research use only (RUO).

PRINCIPLE OF THE ASSAY

Adeno-associated virus (AAV) has become one of the most important gene vectors in the field of gene therapy due to its long-term expression, low toxicity, low immunogenicity, and high tissue specificity. Most successful AAV gene therapies for preclinical and clinical studies are limited to natural serotypes, but the presence of neutralizing antibodies against AAV remains a significant barrier to systemic delivery.

This assay kit is used to measure the levels of anti-AAV5 antibodies by employing a standard sandwich-ELISA format. The microplate in the kit has been pre-coated with AAV5 Capsid Protein. First add the standard samples provided in kit and your samples to the plate, incubate and wash the wells. Then add the Biotin-AAV5 Capsid Protein to the plate, incubate and wash the wells. Next add Streptavidin-HRP to the plate, incubate and wash the wells. Lastly load the substrate into the wells and monitor color development in proportion with the amount of anti-AAV5 antibodies present. The reaction is stopped by the addition of a stop solution and the intensity of the absorbance can be measured at 450 nm and 630 nm. The OD Value reflects the amount of anti-AAV5 antibodies bound.

MATERIALS PROVIDED

TABLE 1. MATERIALS PROVIDED

Catalog	Components	Size (96 tests)	Format	Storage	
				Unopened	Opened
PAV005-C01	Pre-coated AAV5 Capsid Protein Microplate	1 plate	Solid	2-8°C	2-8°C
PAV005-C02	Anti-AAV5 Antibody Standard	20 µg	Powder	2-8°C	-70°C
PAV005-C03	Biotin-AAV5 Capsid Protein	15 µg	Powder	2-8°C, avoid light	-70°C, avoid light
PAV005-C04	Streptavidin-HRP	50 µL	Liquid	2-8°C, avoid light	2-8°C, avoid light
PAV005-C05	10×Washing Buffer	50 mL	Liquid	2-8°C	2-8°C

PAV005-C06	2×Dilution Buffer	50 mL	Liquid	2-8°C	2-8°C
PAV005-C07	Substrate Solution	12 mL	Liquid	2-8°C, avoid light	2-8°C, avoid light
PAV005-C08	Stop Solution	7 mL	Liquid	2-8°C	2-8°C

REAGENTS/EQUIPMENT NEEDED BUT NOT SUPPLIED

Single or dual wavelength microplate reader with 450nm and 630nm filter;

Centrifuge;

37°C Incubator;

10 µL, 200 µL and 1000 µL precision pipettes;

10 µL, 200 µL and 1000 µL pipette tips;

Multichannel pipettes;

Tubes;

Graduated cylinder to prepare Wash Solution;

Deionized or distilled water to dilute 10×Washing Buffer;

STORAGE

1. Unopened kit should be stored at 2°C-8°C upon receiving.
2. Find the expiration date on the outside packaging and do not use reagents past their expiration date.
3. The opened kit should be stored per components table. The shelf life is 30 days from the date of opening.

REAGENT PREPARATION

1. Bring all reagents and samples to room temperature (20°C-25°C) before use. If crystals have formed in buffer solution, place the sample in a 37°C incubator until the crystals have completely dissolved and bring the solution back to room temperature before use.
2. Reconstitute the provided lyophilized materials to stock solutions with distilled, sterile water as recommended in Table 2 and place the materials for 15 to 30 minutes at room temperature with occasional gentle mixing. Avoid vigorous shaking. The reconstituted stock solutions should be stored at -70°C. It is recommended not to freeze-thaw more than 1 times, the packing specification shall not be less than 5 µg.

TABLE 2. RECONSTITUTION METHODS FOR 96 TESTS

ID	Components	Size	Stock Solution Con.	Reconstitution Buffer and
PAV005-C02	Anti-AAV5 Antibody Standard	20 µg	200 µg/mL	100 µL water
PAV005-C03	Biotin-AAV5 Capsid Protein	15 µg	100 µg/mL	150 µL water

RECOMMENDED SAMPLE PREPARATION

1. Working Fluid Preparation

1.1 Preparation of 1×Washing Buffer:

Dilute 50 mL 10×Washing Buffer with ultrapure water/deionized water to 500 mL.

1.2 Preparation of 1×Dilution Buffer:

Dilute 50 mL 2×Dilution Buffer with 1×Washing Buffer to 100 mL.

1.3 Preparation of Biotin-AAV5 Capsid Protein working fluid:

Dilute Biotin-AAV5 Capsid Protein to 0.2 µg/mL with 1×Dilution Buffer. The prepared working fluid should avoid light. Please prepare it for one-time use only.

1.4 Preparation of Streptavidin-HRP working fluid:

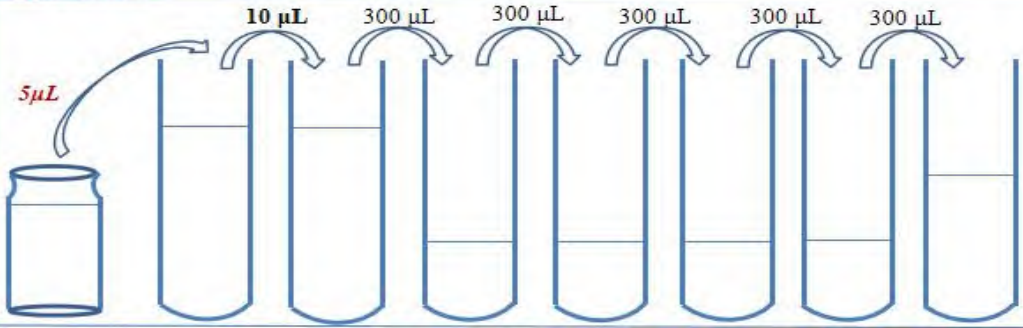
Dilute Streptavidin-HRP at 1:2000 with 1×Dilution Buffer. The prepared working fluid should avoid light. Please prepare it for one-time use only.

2. Preparation of Standard Curve

Make serial dilutions of the Anti-AAV5 Antibody as a Standard curve with Dilution Buffer as recommended in Figure

1.

FIGURE 1. PREPARATION OF 1:1 SERIAL DILUTIONS OF THE Anti-AAV5 Antibody

Tubes/ Solution Code	Anti-AAV5 Antibody Standard stock solution	Std.-0	Std.-1	Std.-2	Std.-3	Std.-4	Std.-5	Std.-6
Operating								
Solution Con.	200µg/mL	1000 ng/mL	10 ng/mL	5 ng/mL	2.5 ng/mL	1.25 ng/mL	0.625 ng/mL	0.313 ng/mL
Dilution Buffer Vol.		995 µL	990 µL	300 µL	300 µL	300 µL	300 µL	300 µL

3. Add Samples

Add 100µL serially diluted **Anti-AAV5 Antibody** Standard curve and samples to each well. For blank Control wells, please add 100µL 1×Dilution Buffer. Seal the plate with microplate sealing film and incubate at 37°C for 1.0 hour.

Note: It is recommended to set double holes for samples and standard curves to be tested.

4. Washing

Remove the remaining solution by aspiration, add 300 µL of 1×Washing Buffer to each well, soak for 30s, remove any remaining 1×Washing Buffer: by aspirating or decanting, invert the plate and blot it against paper towels. Repeat the wash step above for three times.

5. Add Biotin-AAV5 Capsid Protein

For all wells, add 100 µL **Biotin-AAV5 Capsid Protein (dilute to 0.2 µg/mL)** working solution. Seal the plate with microplate sealing film and incubate at 37°C for 1.0 hour.

6. Washing

Repeat step 4.

7. Add Streptavidin-HRP

For all wells, add 100 µL **Streptavidin-HRP (dilute at 1:2000)** working solution. Seal the plate with microplate

sealing film and incubate at 37°C for 1.0 hour.

8. Washing

Repeat step 4.

9. Substrate Reaction

Add 100 µL **Substrate Solution** to each well. Seal the plate with microplate sealing film and incubate at 37°C for 20 min, avoid light.

10. Termination

Add 50 µL **Stop Solution** to each well and tap the plate gently to allow thorough mixing.

Note: The color in the wells should change from blue to yellow.

11. Data Recording

Read the absorbance at 450 nm and 630 nm using UV/Vis microplate spectrophotometer within 5 minutes.

Note: To reduce the background noise, subtract the value read at $OD_{450\text{ nm}}$ with the value read at $OD_{630\text{ nm}}$.

CALCULATION OF RESULTS

1. Normal range of Standard curve: $R^2 \geq 0.9900$, detection range: 0.313-10 ng/mL.
2. If the OD value of the sample to be tested is higher than the highest standard, the sample shall be diluted with dilution buffer and assay repeated.
3. To calibrate absorbance value obtained by the standard curve, the OD value of the sample to be measured is subtracted from the OD value of the blank control. The standard curve is plotted with the standard concentration as x-axis and the calibrated absorbance value as y-axis. Four parameters logistic are used to draw the standard curve and calculate the sample concentration.

PRECAUTIONS

1. This kit is for research use only and is not for use in diagnostic or therapeutic procedures.
2. The kit should be used according to the instructions.
3. Do not mix reagents from different lots.
4. Bring all reagents and samples to room temperature (20°C-25°C) before use. If crystals have formed in buffer solution, warm to room temperature until the crystals have completely dissolved.

5. The kit should be stored at 2°C to 8°C.

TYPICAL DATA

The following data is for reference only. The sample concentration was calculated based on the results of the standard curve.

Anti-AAV5 Antibody Standard (ng/mL)	OD450-630nm	OD450-630nm-Blank
10	2.239	2.179
5	1.247	1.187
2.5	0.546	0.486
1.25	0.294	0.234
0.625	0.150	0.090
0.313	0.091	0.031
Blank	0.060	0.000

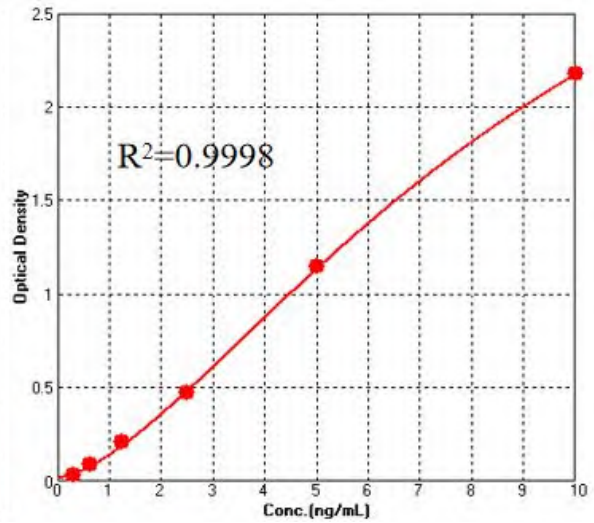
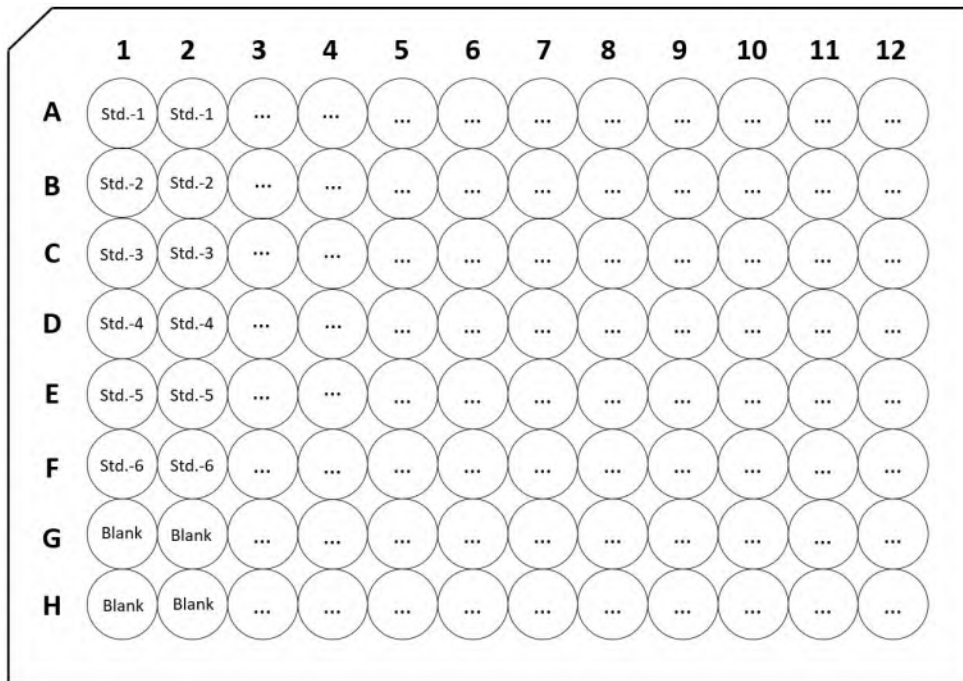


PLATE LAYOUT



Note: Blank is a Blank Dilution Buffer hole.

TROUBLESHOOTING GUIDE

Problem	Cause	Solution
Poor standard curve	* Inaccurate pipetting	* Check pipettes
Large CV	* Inaccurate pipetting * Air bubbles in wells	* Check pipettes * Remove bubbles in wells
High background	* Plate is insufficiently washed * Contaminated wash buffer	* Review the manual for proper wash. * Make fresh wash buffer
Very low readings across the plate	* Incorrect wavelengths * Insufficient development time	* Check filters/reader * Increase development time
Samples are reading too high, but standard curve looks fine	* Samples contain cytokine levels above assay range	* Dilute samples and run again
Drift	* Interrupted assay set-up * Reagents not at room temperature	* Assay set-up should be continuous - have all standards and samples prepared appropriately before commencement of the assay * Ensure that all reagents are at room temperature before pipetting into the wells unless otherwise instructed in the antibody inserts