PRECISION MADE PRACTICAL

USER MANUAL

AAVX Total Capsid Quantification Kit (Up to 40 Tests)

PRODUCT CODE: AK-AAV-002

VERSION 1.1
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For research use only. Not for use in diagnostic procedures.

Introduction

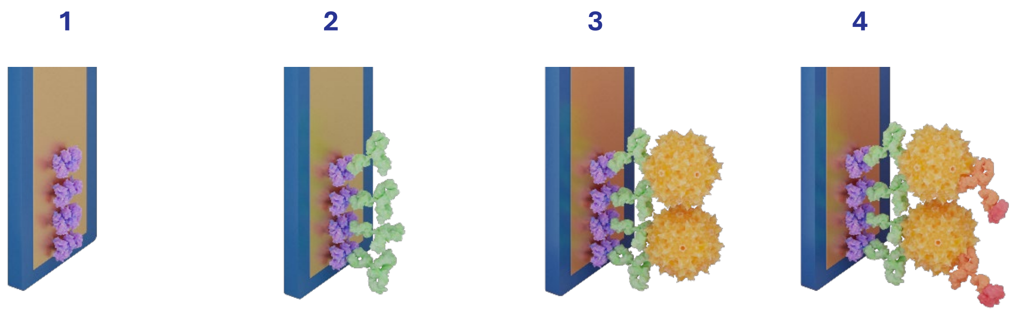
The AAVX Total Capsid Quantification Kit is designed for accurate measurement of adeno-associated virus (AAV) total capsid concentration across multiple serotypes, including AAV1 through AAV8 and AAVrh10*.

This kit is intended for use with the **Amperia™** Protein Quantification System which automates data acquisition and analysis to deliver reproducible and high-quality results.

The assay follows a **sandwich immunoassay format (Figure 1)**, in which AAV capsids are captured by a biotinylated antibody specific to AAV serotypes, immobilized onto streptavidin-coated sensors. A horseradish peroxidase (HRP)-conjugated antibody is then applied to detect bound capsids, producing a quantifiable signal upon substrate conversion.

The included reagents are validated to deliver optimal performance, with key antibody components manufactured by **Thermo Fisher Scientific**.

Figure 1: Assay workflow schematic



1. Sensor surface with streptavidin coating.
2. Capture antibody binding via biotin-streptavidin interaction.
3. AAV capsid captured by the immobilized antibody.
4. Detection antibody (HRP-conjugated) binds the captured capsid, enabling signal generation.

***NOTE:**

While the assay protocol is applicable to AAV1–AAV8 and AAVrh10, internal validation has been conducted to date on selected serotypes (including AAV2, AAV5, AAV6, and AAV8). Additional validation data may be available upon request or in future kit versions.

Detection range may vary depending on analyte affinity and assay conditions.

Table of Contents

1 Kit Components

Each AAVX Total Capsid Quantification Kit (Product Code: AK-AAV-002) contains the following components:

- Streptavidin Sensor|Universal (SN-002): 10 Sensor Strips, Up to 40 Tests
- 6 mL CaptureSelect™ Biotin Anti-AAVX Conjugate (A1-8034)
- 6 mL CaptureSelect™ HRP Anti-AAVX Conjugate (A1-8035)
- 30 mL Wash Buffer|AAV Quantification (A1-8027)
- 13 mL Sample Dilution Buffer|AAV Quantification (A1-8028)
- 13 mL Substrate (A1-8026)
- 2 × 96-well Non-binding Plates (CN-001)

ADDITIONAL MATERIALS REQUIRED (NOT INCLUDED):

- AAV reference material (see Appendix for validated suppliers)
- Deionised water or PBS

2 Reagent Plates Preparation

Please allow all sensors and reagents to reach room temperature before use. Do not open the sensor bags until they have equilibrated.

Each sensor strip contains four independent probes, supporting four measurement wells per strip. A single run can include between 1 and 10 strips, allowing for a total of 4 to 40 measurement wells, depending on your configuration.

Sensor usage is based on the total number of measurement wells, whether assigned to samples, standards, or controls. For example, 10 strips support 40 wells, 9 strips support 36, 8 strips support 32, and so on. This scaling applies whether you're running samples only or combining standards and controls.

When preparing Plate 1 and Plate 2, ensure that:

- If a well is used for measurement (i.e., assigned to a sample, standard, or control), the corresponding well in the paired plate must be filled with Substrate.
- If a well is not used for measurement, the corresponding wells in both plates may be filled with PBS or deionised water.

For examples of how to configure fewer than 40 measurement wells, refer to the layout options provided in **Section 2.3.2**.

You may prepare your experiment using one of the following options:

- Option 1: Calibration Curve + Samples – for generating a new calibration curve and quantifying samples in the same run.
- Option 2: Samples Only – for quantifying samples using a previously saved calibration curve.

2.1 OPTION 1: CALIBRATION CURVE + SAMPLES

This option allows you to generate a new calibration curve and quantify your samples in a single run.

2.1.1 PLATE LAYOUT

To establish the calibration curve in duplicate, two plates are prepared as shown in **Figure 2.1**.

Figure 2.1: Example plate layout for calibration curve and sample wells

PLATE 1

	1	2	3	4	5	6	7	8	9	10	11	12
A	E	W	Std1	Std1	S	S	S	C	C	C	C	C
B	E	W	Std2	Std2	S	S	S	C	C	C	C	C
C	E	W	Std3	Std3	S	S	S	C	C	C	C	C
D	E	W	Std4	Std4	S	S	S	C	C	C	C	C
E	E	W	Std5	Std5	S	S	S	D	D	D	D	D
F	E	W	Std6	Std6	S	S	S	D	D	D	D	D
G	E	W	Std7	Std7	S	S	S	D	D	D	D	D
H	E	W	Std8	Std8	S	S	S	D	D	D	D	D

PLATE 2

	1	2	3	4	5	6	7	8	9	10	11	12
A	T	T	T	T	T	W	W	W	W	W	W	W
B	T	T	T	T	T	W	W	W	W	W	W	W
C	T	T	T	T	T	W	W	W	W	W	W	W
D	T	T	T	T	T	W	W	W	W	W	W	W
E	T	T	T	T	T	W	W	W	W	W	W	W
F	T	T	T	T	T	W	W	W	W	W	W	W
G	T	T	T	T	T	W	W	W	W	W	W	W
H	T	T	T	T	T	W	W	W	W	W	W	W

Notation:

S: Measurement Wells
W: Wash Buffer|AAV Quantification (A1-8027)
Std1–Std8: Standards (see Section 2.1.2)
C: CaptureSelect™ Biotin Anti-AAVX Conjugate (A1-8034)
D: CaptureSelect™ HRP Anti-AAVX Conjugate (A1-8035)
T: Substrate (A1-8026)
E: Empty Well

2.1.2 PREPARATION OF REAGENTS

Calibrator Preparation

Dilute the AAV calibrator into the Sample Dilution Buffer|AAV Quantification (A1-8028) to prepare the concentrations listed in **Table 1**.

Standards and Reference Materials
Validated AAV reference materials are required to prepare the calibration standards. Refer to the Appendix – Validated Reference Materials for recommended suppliers and product codes.

NOTE:
The calibration curve is prepared using a 2× serial dilution. For optimal performance, ensure the buffer composition matches that of your samples.

Table 1: Calibration curve concentrations

ID	Concentration (vp/mL)
Std1	0.78×10^9
Std2	1.56×10^9
Std3	3.13×10^9
Std4	6.25×10^9
Std5	1.25×10^{10}
Std6	2.50×10^{10}
Std7	5.00×10^{10}
Std8	1.00×10^{11}

Dispense 250 μL of each standard concentration into **Plate 1** as shown in the plate layout (see **Figure 2.1**).

Samples

Dilute your samples using the Sample Dilution Buffer|AAV Quantification (A1-8028) to fall within the calibration range ($1 \times 10^9 – 1 \times 10^{11}$ vp/mL). Dispense 250 μL of each diluted sample into the appropriate wells (**Figure 2.1**).

Other Reagents

Dispense 250 μL of each reagent into the corresponding wells according to the plate layout (see **Figure 2.1**).

2.1.3 EXPERIMENT SETUP

Once the calibration and sample plates are prepared, proceed to **Section 3: Instrument Setup** for details on creating the experiment and loading plates and sensors.

2.2 OPTION 2: SAMPLES ONLY (USING A SAVED CALIBRATION CURVE)

This option allows you to quantify samples using a previously generated calibration curve stored on the instrument.

2.2.1 PLATE LAYOUT

Up to 40 measurement wells can be used per run. Wells may be assigned to samples only, or a combination of samples and controls.

Figure 2.2: Sample-only plate layout

PLATE 1

	1	2	3	4	5	6	7	8	9	10	11	12
A	E	W	S	S	S	S	S	C	C	C	C	C
B	E	W	S	S	S	S	S	C	C	C	C	C
C	E	W	S	S	S	S	S	C	C	C	C	C
D	E	W	S	S	S	S	S	C	C	C	C	C
E	E	W	S	S	S	S	S	D	D	D	D	D
F	E	W	S	S	S	S	S	D	D	D	D	D
G	E	W	S	S	S	S	S	D	D	D	D	D
H	E	W	S	S	S	S	S	D	D	D	D	D

PLATE 2

	1	2	3	4	5	6	7	8	9	10	11	12
A	T	T	T	T	T	W	W	W	W	W	W	W
B	T	T	T	T	T	W	W	W	W	W	W	W
C	T	T	T	T	T	W	W	W	W	W	W	W
D	T	T	T	T	T	W	W	W	W	W	W	W
E	T	T	T	T	T	W	W	W	W	W	W	W
F	T	T	T	T	T	W	W	W	W	W	W	W
G	T	T	T	T	T	W	W	W	W	W	W	W
H	T	T	T	T	T	W	W	W	W	W	W	W

Notation:

S: Measurement wells
W: Wash Buffer|AAV Quantification (A1-8027)
C: CaptureSelect™ Biotin Anti-AAVX Conjugate (A1-8034)
D: CaptureSelect™ HRP Anti-AAVX Conjugate (A1-8035)
T: Substrate (A1-8026)
E: Empty Well

2.2.2 PREPARATION OF REAGENTS

Samples

Dilute your samples using the Sample Dilution Buffer|AAV Quantification (A1-8028) to fall within the recommended range ($1 \times 10^{9} – 1 \times 10^{11}$ vp/mL). Dispense 250 µL into each S well.

Other Reagents

Dispense 250 µL of each reagent into the appropriate wells according to the plate layout, see **Figure 2.2**.

2.2.3 EXPERIMENT SETUP

Proceed to **Section 3: Instrument Setup** for instructions on creating the experiment, assigning wells, and loading plates and sensors.

2.3 OTHER INFORMATION

2.3.1 CONTROLS DURING QUANTIFICATION

When using a previously saved calibration curve, the Amperia™ system allows you to quantify samples without including new standards in the same run. However, to maintain quantification accuracy, it is recommended to include **internal controls**.

These controls should consist of standards or samples with a known concentration (e.g., 2.5×10^{10} vp/mL), placed in two or more wells.

Including controls allows the system to compensate for potential variations in environmental or plate-specific conditions.

TIP: To include controls, replace one or more sample wells with standards or known material, and adjust your plate layout accordingly.

2.3.2 QUANTIFICATION OF FEWER THAN 40 MEASUREMENT WELLS

The kit supports up to **40 measurement wells** per run. These wells can be assigned to **samples**, **standards**, or **controls**, in any combination.

If fewer than 40 wells are required, the unused wells can be excluded from analysis. To maintain proper plate loading, the corresponding empty well positions in both **Plate 1** & **Plate 2** may be filled with **PBS** or **deionised water**.

You may prepare your experiment using:

- **Calibration Curve + Samples**
- **Samples Only**, using a previously saved calibration curve
- **Controls** or **known reference materials** to monitor consistency

To assist with setup, recommended plate layouts for common configurations (4–36 wells) are shown in **Figure 2.3**.

Figure 2.3. Example plate layouts for 4–36 measurement wells (1–9 sensor strips)

1

36 MEASUREMENT WELLS USING 9 SENSOR STRIPS

PLATE 1

	1	2	3	4	5	6	7	8	9	10	11	12
A	E	W	S	S	S	S	S	C	C	C	C	C
B	E	W	S	S	S	S	S	C	C	C	C	C
C	E	W	S	S	S	S	S	C	C	C	C	C
D	E	W	S	S	S	S	S	C	C	C	C	C
E	E	W	S	S	S	S	DI	D	D	D	D	D
F	E	W	S	S	S	S	DI	D	D	D	D	D
G	E	W	S	S	S	S	DI	D	D	D	D	D
H	E	W	S	S	S	S	DI	D	D	D	D	D

PLATE 2

	1	2	3	4	5	6	7	8	9	10	11	12
A	T	T	T	T	T	W	W	W	W	W	W	W
B	T	T	T	T	T	W	W	W	W	W	W	W
C	T	T	T	T	T	W	W	W	W	W	W	W
D	T	T	T	T	T	W	W	W	W	W	W	W
E	T	T	T	T	DI	W	W	W	W	W	W	W
F	T	T	T	T	DI	W	W	W	W	W	W	W
G	T	T	T	T	DI	W	W	W	W	W	W	W
H	T	T	T	T	DI	W	W	W	W	W	W	W

2

32 MEASUREMENT WELLS USING 8 SENSOR STRIPS

PLATE 1

	1	2	3	4	5	6	7	8	9	10	11	12
A	E	W	S	S	S	S	DI	C	C	C	C	DI
B	E	W	S	S	S	S	DI	C	C	C	C	DI
C	E	W	S	S	S	S	DI	C	C	C	C	DI
D	E	W	S	S	S	S	DI	C	C	C	C	DI
E	E	W	S	S	S	S	DI	D	D	D	D	DI
F	E	W	S	S	S	S	DI	D	D	D	D	DI
G	E	W	S	S	S	S	DI	D	D	D	D	DI
H	E	W	S	S	S	S	DI	D	D	D	D	DI

PLATE 2

	1	2	3	4	5	6	7	8	9	10	11	12
A	T	T	T	T	DI	W	W	W	W	W	W	W
B	T	T	T	T	DI	W	W	W	W	W	W	W
C	T	T	T	T	DI	W	W	W	W	W	W	W
D	T	T	T	T	DI	W	W	W	W	W	W	W
E	T	T	T	T	DI	W	W	W	W	W	W	W
F	T	T	T	T	DI	W	W	W	W	W	W	W
G	T	T	T	T	DI	W	W	W	W	W	W	W
H	T	T	T	T	DI	W	W	W	W	W	W	W

3

28 MEASUREMENT WELLS USING 7 SENSOR STRIPS

PLATE 1

	1	2	3	4	5	6	7	8	9	10	11	12
A	E	W	S	S	S	S	DI	C	C	C	C	DI
B	E	W	S	S	S	S	DI	C	C	C	C	DI
C	E	W	S	S	S	S	DI	C	C	C	C	DI
D	E	W	S	S	S	S	DI	C	C	C	C	DI
E	E	W	S	S	S	DI	DI	D	D	D	D	DI
F	E	W	S	S	S	DI	DI	D	D	D	D	DI
G	E	W	S	S	S	DI	DI	D	D	D	D	DI
H	E	W	S	S	S	DI	DI	D	D	D	D	DI

PLATE 2

	1	2	3	4	5	6	7	8	9	10	11	12
A	T	T	T	T	DI	W	W	W	W	W	W	W
B	T	T	T	T	DI	W	W	W	W	W	W	W
C	T	T	T	T	DI	W	W	W	W	W	W	W
D	T	T	T	T	DI	W	W	W	W	W	W	W
E	T	T	T	DI	DI	W	W	W	W	W	W	W
F	T	T	T	DI	DI	W	W	W	W	W	W	W
G	T	T	T	DI	DI	W	W	W	W	W	W	W
H	T	T	T	DI	DI	W	W	W	W	W	W	W

4

28 MEASUREMENT WELLS USING 6 SENSOR STRIPS

PLATE 1

	1	2	3	4	5	6	7	8	9	10	11	12
A	E	W	S	S	S	DI	DI	C	C	C	DI	DI
B	E	W	S	S	S	DI	DI	C	C	C	DI	DI
C	E	W	S	S	S	DI	DI	C	C	C	DI	DI
D	E	W	S	S	S	DI	DI	C	C	C	DI	DI
E	E	W	S	S	S	DI	DI	D	D	D	DI	DI
F	E	W	S	S	S	DI	DI	D	D	D	DI	DI
G	E	W	S	S	S	DI	DI	D	D	D	DI	DI
H	E	W	S	S	S	DI	DI	D	D	D	DI	DI

PLATE 2

	1	2	3	4	5	6	7	8	9	10	11	12
A	T	T	T	DI	DI	W	W	W	W	W	W	W
B	T	T	T	DI	DI	W	W	W	W	W	W	W
C	T	T	T	DI	DI	W	W	W	W	W	W	W
D	T	T	T	DI	DI	W	W	W	W	W	W	W
E	T	T	T	DI	DI	W	W	W	W	W	W	W
F	T	T	T	DI	DI	W	W	W	W	W	W	W
G	T	T	T	DI	DI	W	W	W	W	W	W	W
H	T	T	T	DI	DI	W	W	W	W	W	W	W

5
20 MEASUREMENT WELLS USING 5 SENSOR STRIPS

PLATE 1

	1	2	3	4	5	6	7	8	9	10	11	12
A	E	W	S	S	S	DI	DI	C	C	C	DI	DI
B	E	W	S	S	S	DI	DI	C	C	C	DI	DI
C	E	W	S	S	S	DI	DI	C	C	C	DI	DI
D	E	W	S	S	S	DI	DI	C	C	C	DI	DI
E	E	W	S	S	DI	DI	DI	D	D	D	DI	DI
F	E	W	S	S	DI	DI	DI	D	D	D	DI	DI
G	E	W	S	S	DI	DI	DI	D	D	D	DI	DI
H	E	W	S	S	DI	DI	DI	D	D	D	DI	DI

PLATE 2

	1	2	3	4	5	6	7	8	9	10	11	12
A	T	T	T	DI	DI	W	W	W	W	W	W	W
B	T	T	T	DI	DI	W	W	W	W	W	W	W
C	T	T	T	DI	DI	W	W	W	W	W	W	W
D	T	T	T	DI	DI	W	W	W	W	W	W	W
E	T	T	DI	DI	DI	W	W	W	W	W	W	W
F	T	T	DI	DI	DI	W	W	W	W	W	W	W
G	T	T	DI	DI	DI	W	W	W	W	W	W	W
H	T	T	DI	DI	DI	W	W	W	W	W	W	W

6
16 MEASUREMENT WELLS USING 4 SENSOR STRIPS

PLATE 1

	1	2	3	4	5	6	7	8	9	10	11	12
A	E	W	S	S	DI	DI	DI	C	C	DI	DI	DI
B	E	W	S	S	DI	DI	DI	C	C	DI	DI	DI
C	E	W	S	S	DI	DI	DI	C	C	DI	DI	DI
D	E	W	S	S	DI	DI	DI	C	C	DI	DI	DI
E	E	W	S	S	DI	DI	DI	D	D	DI	DI	DI
F	E	W	S	S	DI	DI	DI	D	D	DI	DI	DI
G	E	W	S	S	DI	DI	DI	D	D	DI	DI	DI
H	E	W	S	S	DI	DI	DI	D	D	DI	DI	DI

PLATE 2

	1	2	3	4	5	6	7	8	9	10	11	12
A	T	T	DI	DI	DI	W	W	W	W	W	W	W
B	T	T	DI	DI	DI	W	W	W	W	W	W	W
C	T	T	DI	DI	DI	W	W	W	W	W	W	W
D	T	T	DI	DI	DI	W	W	W	W	W	W	W
E	T	T	DI	DI	DI	W	W	W	W	W	W	W
F	T	T	DI	DI	DI	W	W	W	W	W	W	W
G	T	T	DI	DI	DI	W	W	W	W	W	W	W
H	T	T	DI	DI	DI	W	W	W	W	W	W	W

7
12MEASUREMENT WELLS USING 3 SENSOR STRIPS

PLATE 1

	1	2	3	4	5	6	7	8	9	10	11	12
A	E	W	S	S	DI	DI	DI	C	C	DI	DI	DI
B	E	W	S	S	DI	DI	DI	C	C	DI	DI	DI
C	E	W	S	S	DI	DI	DI	C	C	DI	DI	DI
D	E	W	S	S	DI	DI	DI	C	C	DI	DI	DI
E	E	W	S	DI	DI	DI	DI	D	D	DI	DI	DI
F	E	W	S	DI	DI	DI	DI	D	D	DI	DI	DI
G	E	W	S	DI	DI	DI	DI	D	D	DI	DI	DI
H	E	W	S	DI	DI	DI	DI	D	D	DI	DI	DI

PLATE 2

	1	2	3	4	5	6	7	8	9	10	11	12
A	T	T	DI	DI	DI	W	W	W	W	W	W	W
B	T	T	DI	DI	DI	W	W	W	W	W	W	W
C	T	T	DI	DI	DI	W	W	W	W	W	W	W
D	T	T	DI	DI	DI	W	W	W	W	W	W	W
E	T	DI	DI	DI	DI	W	W	W	W	W	W	W
F	T	DI	DI	DI	DI	W	W	W	W	W	W	W
G	T	DI	DI	DI	DI	W	W	W	W	W	W	W
H	T	DI	DI	DI	DI	W	W	W	W	W	W	W

8
8 MEASUREMENT WELLS USING 2 SENSOR STRIPS

PLATE 1

	1	2	3	4	5	6	7	8	9	10	11	12
A	E	W	S	DI	DI	DI	DI	C	DI	DI	DI	DI
B	E	W	S	DI	DI	DI	DI	C	DI	DI	DI	DI
C	E	W	S	DI	DI	DI	DI	C	DI	DI	DI	DI
D	E	W	S	DI	DI	DI	DI	C	DI	DI	DI	DI
E	E	W	S	DI	DI	DI	DI	D	DI	DI	DI	DI
F	E	W	S	DI	DI	DI	DI	D	DI	DI	DI	DI
G	E	W	S	DI	DI	DI	DI	D	DI	DI	DI	DI
H	E	W	S	DI	DI	DI	DI	D	DI	DI	DI	DI

PLATE 2

	1	2	3	4	5	6	7	8	9	10	11	12
A	T	DI	DI	DI	DI	W	W	W	W	W	W	W
B	T	DI	DI	DI	DI	W	W	W	W	W	W	W
C	T	DI	DI	DI	DI	W	W	W	W	W	W	W
D	T	DI	DI	DI	DI	W	W	W	W	W	W	W
E	T	DI	DI	DI	DI	W	W	W	W	W	W	W
F	T	DI	DI	DI	DI	W	W	W	W	W	W	W
G	T	DI	DI	DI	DI	W	W	W	W	W	W	W
H	T	DI	DI	DI	DI	W	W	W	W	W	W	W

9

4 MEASUREMENT WELLS USING 1 SENSOR STRIPS

PLATE 1

	1	2	3	4	5	6	7	8	9	10	11	12
A	E	W	S	DI	DI	DI	DI	C	DI	DI	DI	DI
B	E	W	S	DI	DI	DI	DI	C	DI	DI	DI	DI
C	E	W	S	DI	DI	DI	DI	C	DI	DI	DI	DI
D	E	W	S	DI	DI	DI	DI	C	DI	DI	DI	DI
E	E	W	DI	DI	DI	DI	DI	D	DI	DI	DI	DI
F	E	W	DI	DI	DI	DI	DI	D	DI	DI	DI	DI
G	E	W	DI	DI	DI	DI	DI	D	DI	DI	DI	DI
H	E	W	DI	DI	DI	DI	DI	D	DI	DI	DI	DI

PLATE 2

	1	2	3	4	5	6	7	8	9	10	11	12
A	T	DI	DI	DI	DI	W	W	W	W	W	W	W
B	T	DI	DI	DI	DI	W	W	W	W	W	W	W
C	T	DI	DI	DI	DI	W	W	W	W	W	W	W
D	T	DI	DI	DI	DI	W	W	W	W	W	W	W
E	DI	DI	DI	DI	DI	W	W	W	W	W	W	W
F	DI	DI	DI	DI	DI	W	W	W	W	W	W	W
G	DI	DI	DI	DI	DI	W	W	W	W	W	W	W
H	DI	DI	DI	DI	DI	W	W	W	W	W	W	W

Notation:

S: Measurement Wells
W: Wash Buffer|AAV Quantification (A1-8027)
C: CaptureSelect™ Biotin Anti-AAVX Conjugate (A1-8034)
D: CaptureSelect™ HRP Anti-AAVX Conjugate (A1-8035)
T: Substrate (A1-8026)
E: Empty Well
DI: Deionised water or PBS (not provided)

3 Instrument Setup

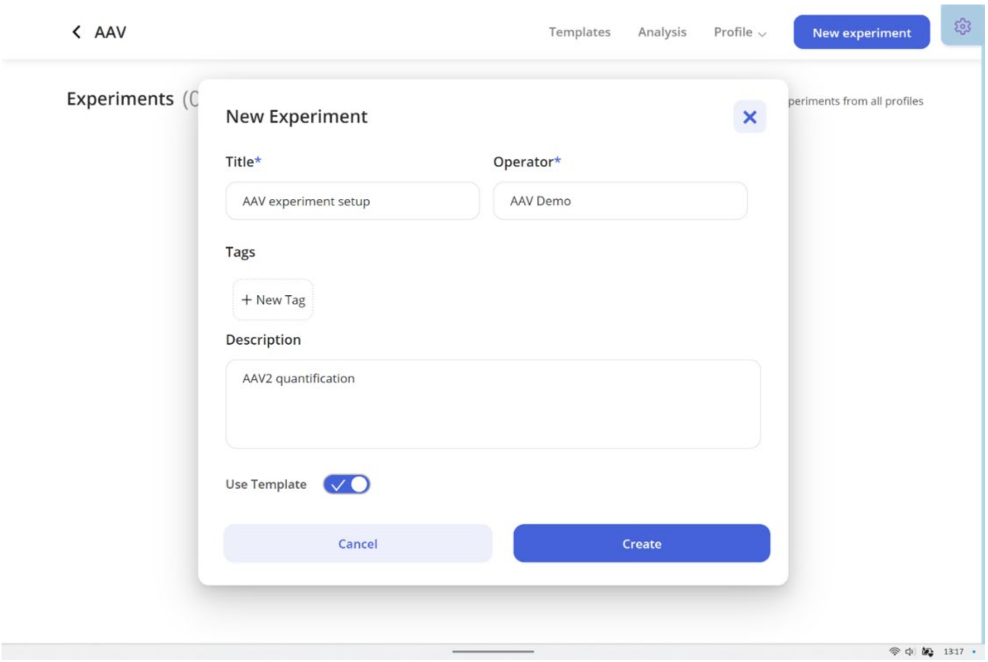
This section describes how to set up an experiment in the Amperia™ system using a predefined template. The workflow includes creating the experiment, assigning wells, loading plates and sensors, and starting the run.

3.1 CREATE A NEW EXPERIMENT

From the **Experiments** page:

- Tap **New Experiment**
- Enter a unique title and optional description
- Ensure **Use Template** is selected
- Tap **Create** → See **Figure 3.1**

Figure 3.1. Creating a new experiment from the Experiments page.

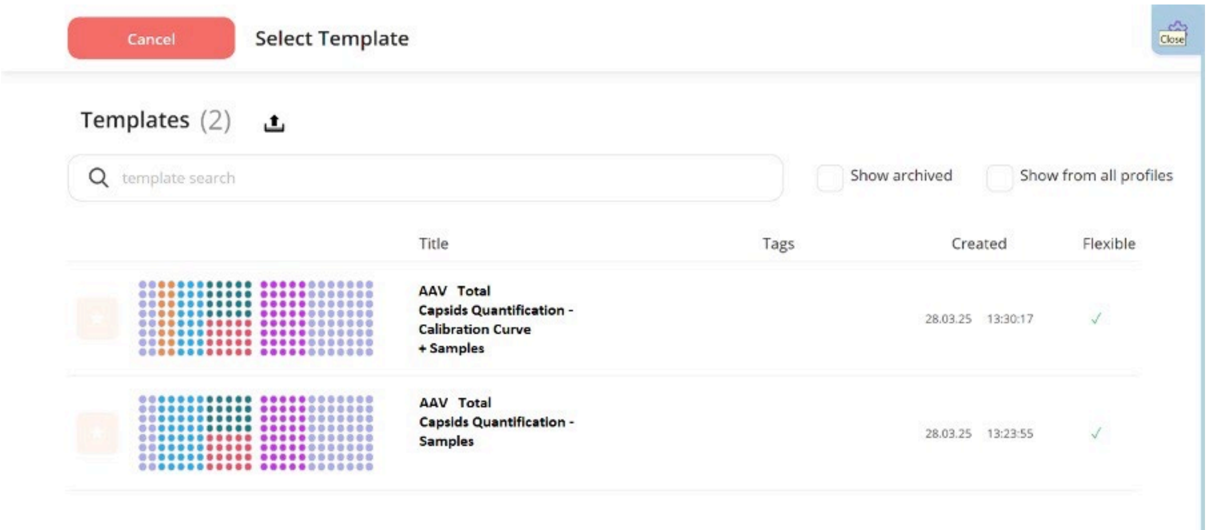


3.2 RUNNING THE EXPERIMENT

Select Template

- Choose **AAV Total Capsids Quantification – Calibration Curve + Samples**
- Tap **Create** again to confirm → See **Figure 3.2**

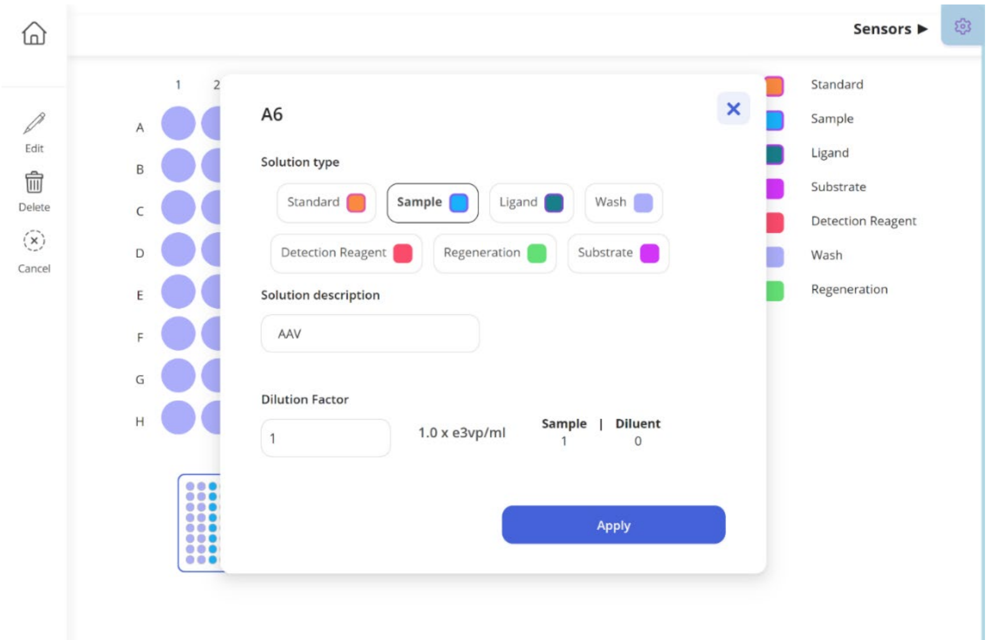
Figure 3.2. Selecting the appropriate template for AAV quantification.



Assign Wells

- Tap the **Timeline** button, then navigate to: **Sequence** → **Sensors** → **Plate**
- In the **Plate** screen, tap any well to edit
- Use the **Solution Description** field to assign each well (e.g. as Sample, Standard, or other relevant solution types) → See **Figure 3.3**

Figure 3.3 Assign wells.



Review Layout

- Use Sensors → Layout →Review to confirm assignments

Start Run and Load Materials

- Tap Start Experiment → See **Figure 3.4**
- Open the front door when prompted
- Load Plate 1 with holder → See **Figure 3.5**
- Load Plate 2 with holder → See **Figure 3.5**
- Insert required number of sensor strips

Figure 3.4 Tap to start experiment

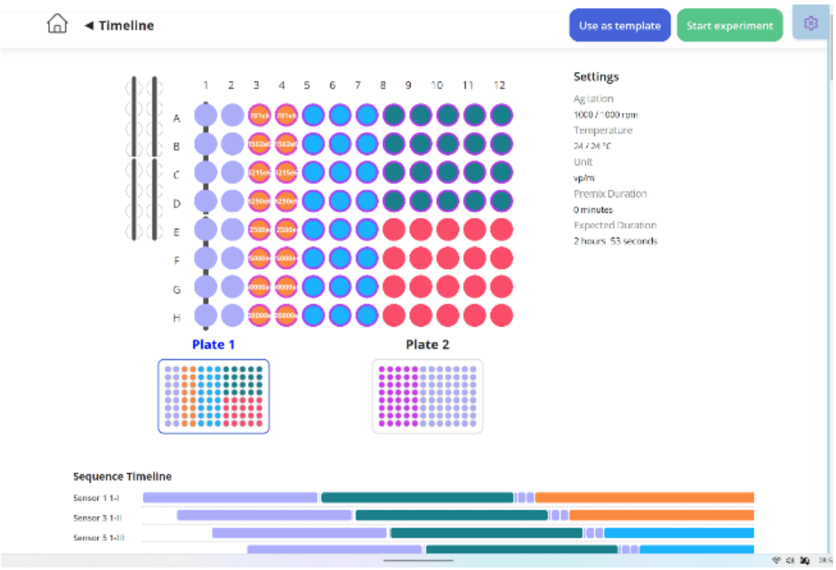


Figure 3.5 Load plate

3.3 SENSOR STRIP REQUIREMENTS AND POSITIONING

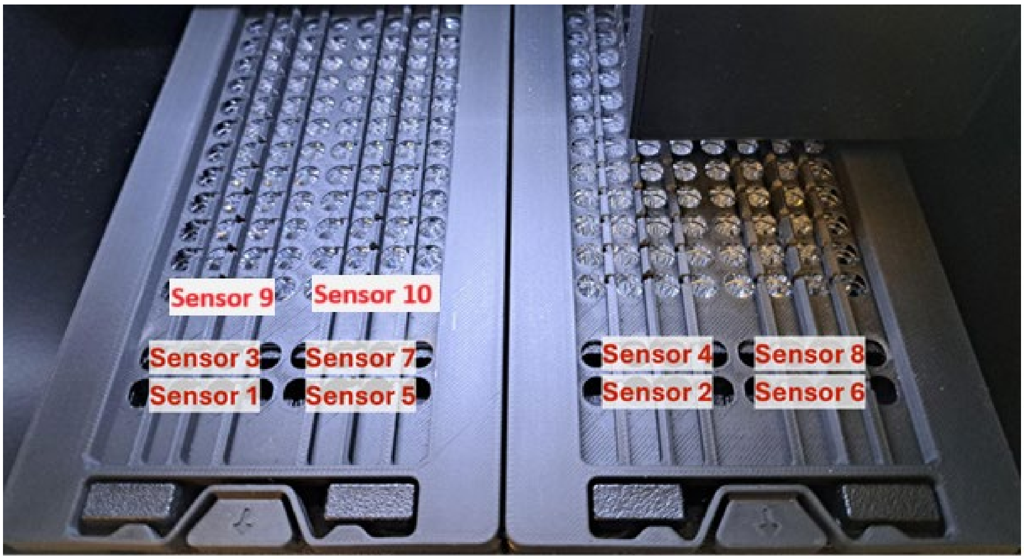
Each sensor strip supports four wells. Use **Table 2** to determine the number of strips needed and refer to **Figure 3.6** for their physical positions on the plate, which shows all sensor positions (1–10) on the Amperia™ plate layout.

Note: Sensor 9 and 10 are assigned based on well positions. Sensor 9 corresponds to wells A1–D1, and Sensor 10 to E1–H1.

Table 2. Number of sensor strips required and corresponding sensor positions

Experiment	Sensors required
Calibration curve: **8 standards in duplicate (16 wells total)**	Sensor 1–4
40 Samples	All sensors
36 Samples	Sensor 1–9
32 Samples	Sensor 1–8
28 Samples	Sensor 1–7
24 Samples	Sensor 1–6
20 Samples	Sensor 1–5
16 Samples	Sensor 1–4
12 Samples	Sensor 1–3
8 Samples	Sensor 1–2
4 Samples	Sensor 1

Figure 3.6 Sensor positions 1–10 on the Amperia™ plate layout.



4 Data Analysis

This section covers two key workflows: generating a calibration curve and using it to quantify AAV samples. All steps are performed through the Amperia™ system's analysis interface.

4.1 CALIBRATION CURVE

You can generate a calibration curve using a completed experiment containing standard measurements. This curve will be saved and available for future quantification.

- From the **Experiments** page, tap the experiment used to measure the standards.
  → See **Figure 4.1**
- A summary window will appear. Tap **Details** to proceed.
  → See **Figure 4.2**
- On the experiment summary screen, tap **Analysis**.
  → See **Figure 4.3**
- If no analysis has been created yet, the list will be empty. Tap **New Analysis** to start.
  → See **Figure 4.4**
- Enter a unique name for your new analysis.
  → See **Figure 4.5**
- A summary of all measurements in the experiment will be shown, grouped by solution type. Standards will be clearly labelled. Tap **New Chart**.
  → See **Figure 4.6**
- Select **Generate standard curve** to begin.
  → See **Figure 4.7**
- The software will automatically fit a curve to all valid standard measurements.
  → See **Figure 4.8**
- To exclude individual points, tap the pen icon and uncheck them. You can also rename the curve. Tap the wave icon to save.
  → See **Figure 4.9**
- Once complete, tap **Finalize** to save the analysis. This calibration curve can now be used for sample quantification.

Figure 4.1 Select experiment from the Experiments page

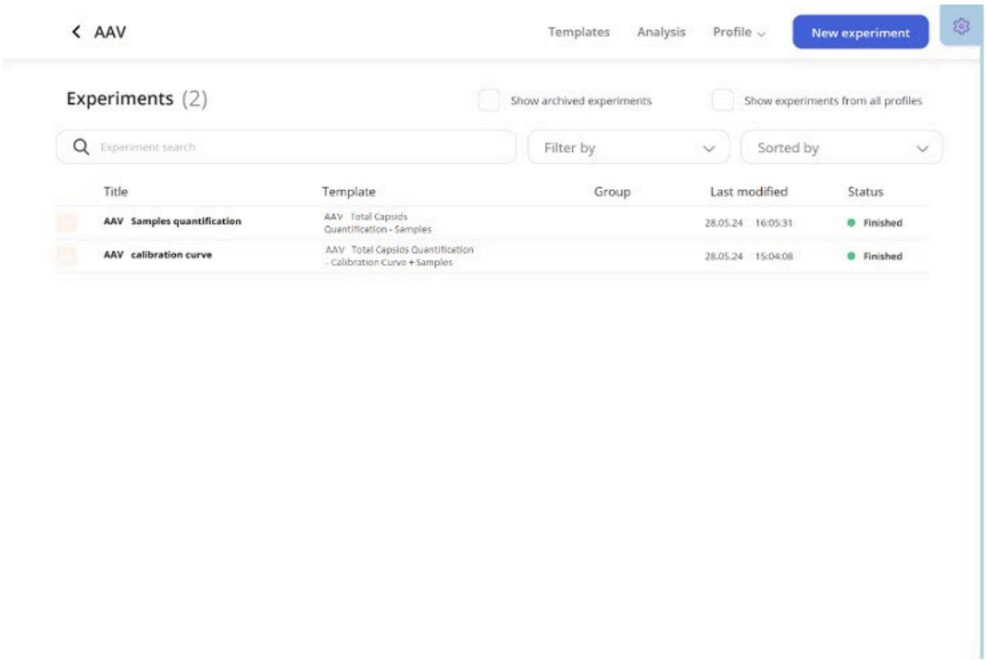


Figure 4.2 Experiment summary window

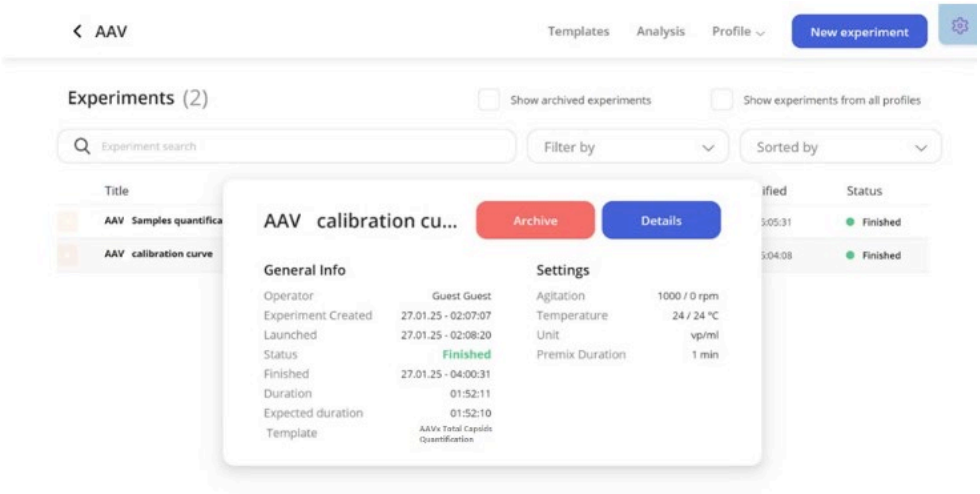


Figure 4.3 Tap Analysis to view existing or create new analysis

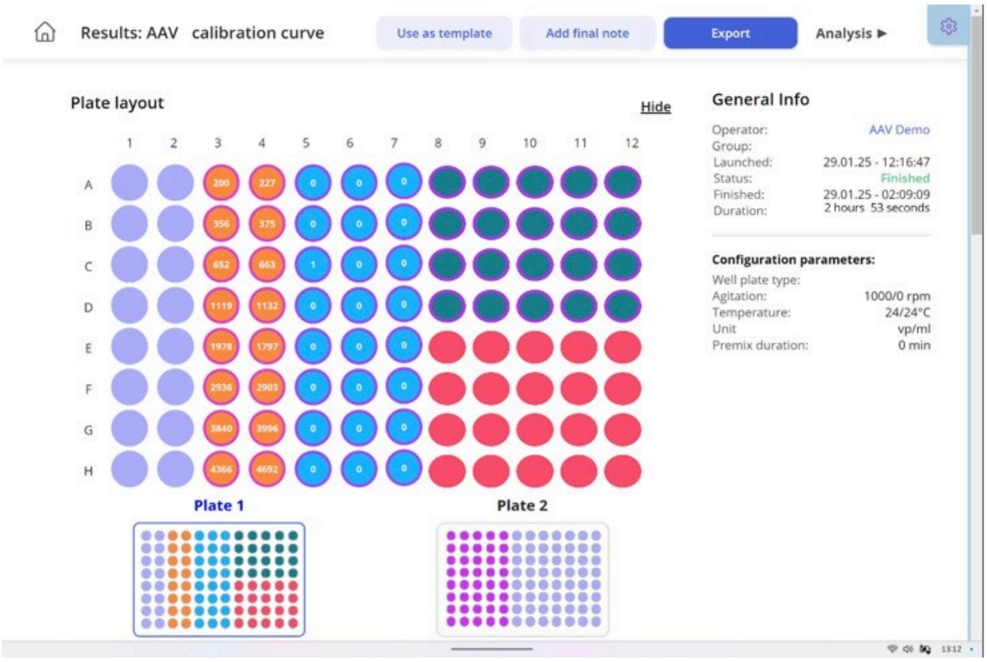


Figure 4.4 Tap on New Analysis to start

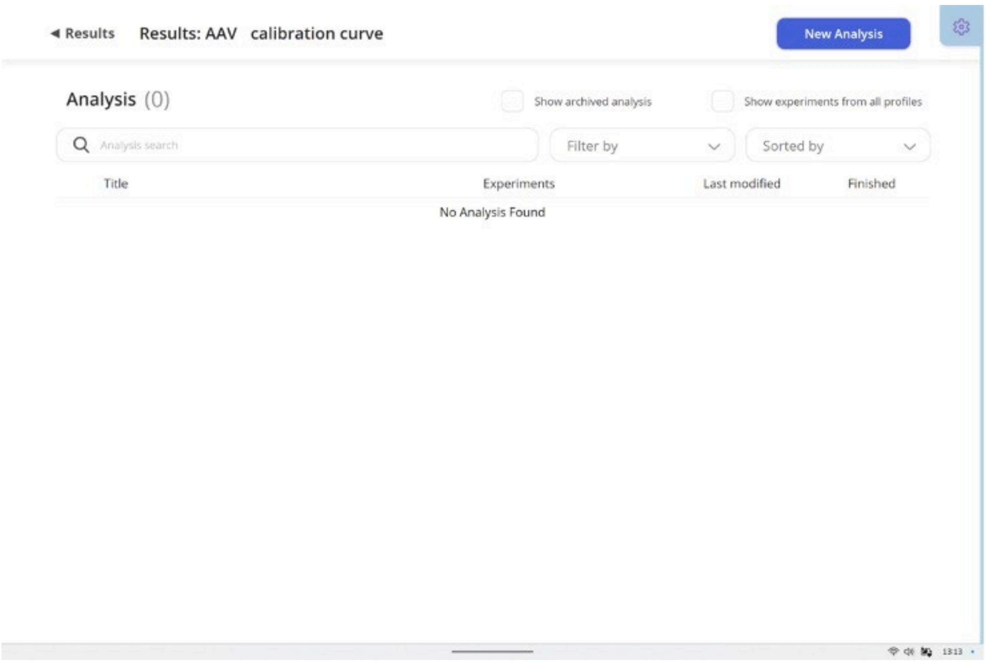


Figure 4.5 Name your new analysis

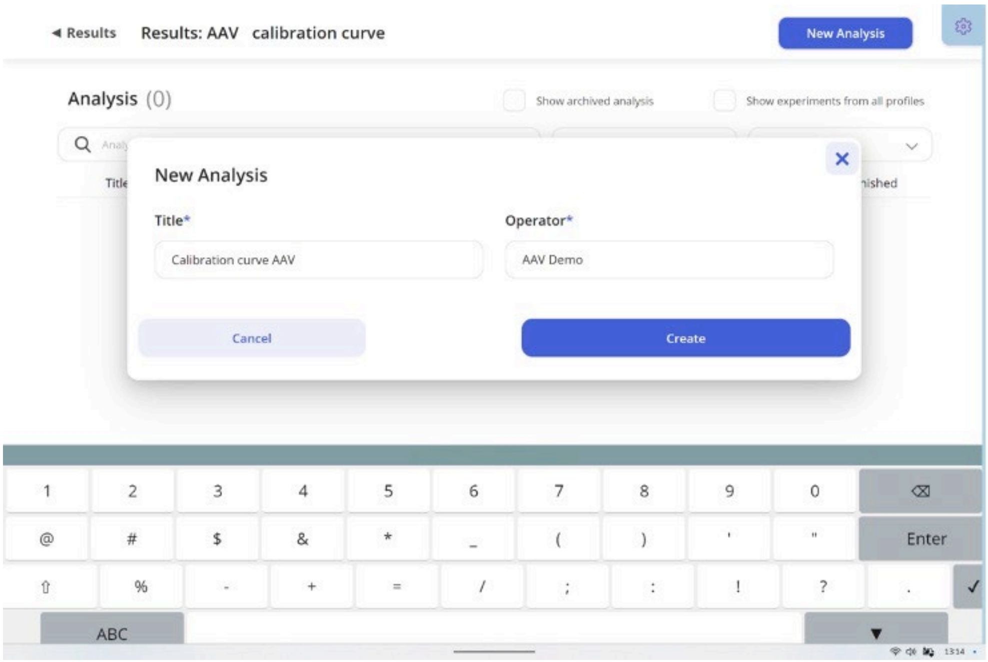
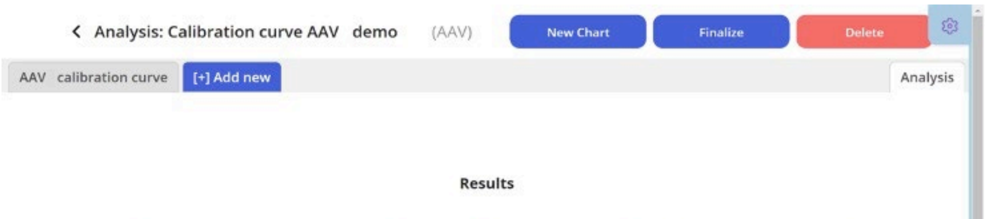


Figure 4.6 Overview of standard measurements grouped by type



Coords	Experiment	Step	Duration	Description	Solution Type	Signal	Concentration
1-A3	AAV calibration curve	5	00 : 00 : 35	AAV	Standard	199.6	0.780 e9vp/ml
1-B3	AAV calibration curve	5	00 : 00 : 35	AAV	Standard	356	1.56 e9vp/ml
1-C3	AAV calibration curve	5	00 : 00 : 35	AAV	Standard	652.4	3.13 e9vp/ml
1-D3	AAV calibration curve	5	00 : 00 : 35	AAV	Standard	1119.2	6.25 e9vp/ml
1-E3	AAV calibration curve	25	00 : 00 : 35	AAV	Standard	1978.2	12.5 e9vp/ml
1-F3	AAV calibration curve	25	00 : 00 : 35	AAV	Standard	2936.5	25.0 e9vp/ml
1-G3	AAV calibration curve	25	00 : 00 : 35	AAV	Standard	3839.8	50.0 e9vp/ml
1-H3	AAV calibration curve	25	00 : 00 : 35	AAV	Standard	4366.5	100 e9vp/ml
1-A4	AAV calibration curve	44	00 : 00 : 35	AAV	Standard	227.3	0.780 e9vp/ml
1-B4	AAV calibration curve	44	00 : 00 : 35	AAV	Standard	374.6	1.56 e9vp/ml
1-C4	AAV calibration curve	44	00 : 00 : 35	AAV	Standard	663.5	3.13 e9vp/ml
1-D4	AAV calibration curve	44	00 : 00 : 35	AAV	Standard	1131.9	6.25 e9vp/ml
1-E4	AAV calibration curve	64	00 : 00 : 35	AAV	Standard	1797.3	12.5 e9vp/ml
1-F4	AAV calibration curve	64	00 : 00 : 35	AAV	Standard	2903.1	25.0 e9vp/ml
1-G4	AAV calibration curve	64	00 : 00 : 35	AAV	Standard	3996	50.0 e9vp/ml
1-H4	AAV calibration curve	64	00 : 00 : 35	AAV	Standard	4691.9	100 e9vp/ml
1-A5	AAV calibration curve	83	00 : 00 : 35	AAV	Sample	0	N/A
1-B5	AAV calibration curve	83	00 : 00 : 35	AAV	Sample	0.3	N/A
1-C5	AAV calibration curve	83	00 : 00 : 35	AAV	Sample	0.8	N/A

Figure 4.7 Tap to generate a standard curve

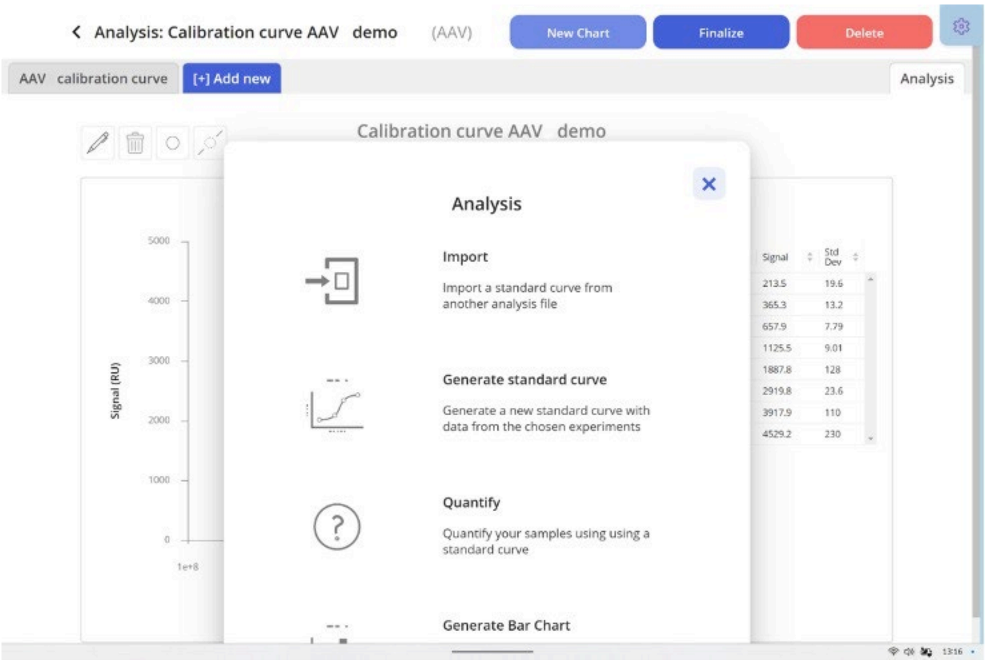


Figure 4.8 Auto-generated standard curve

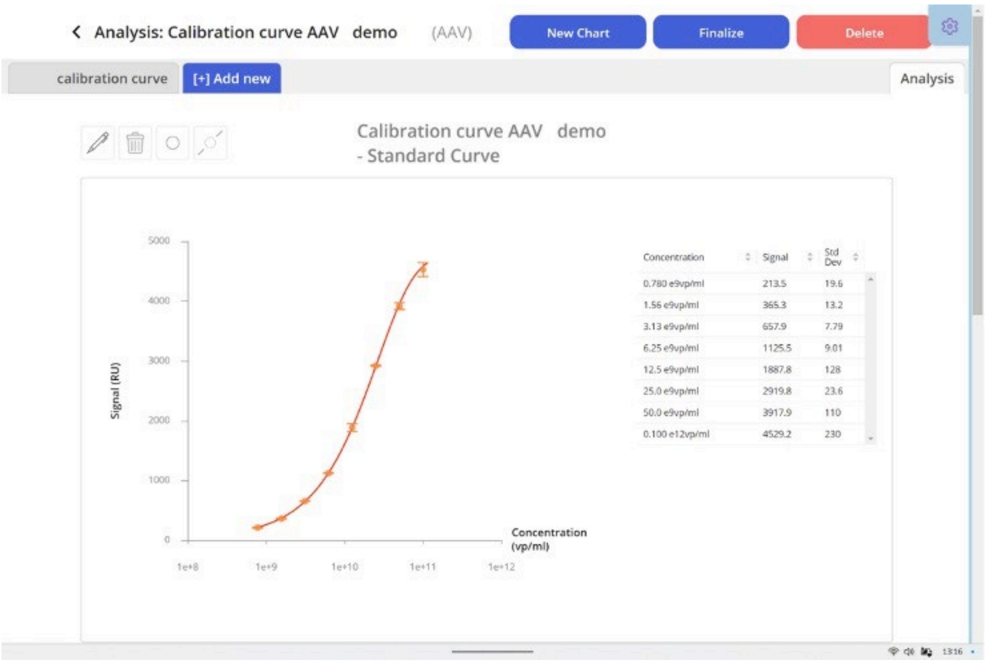
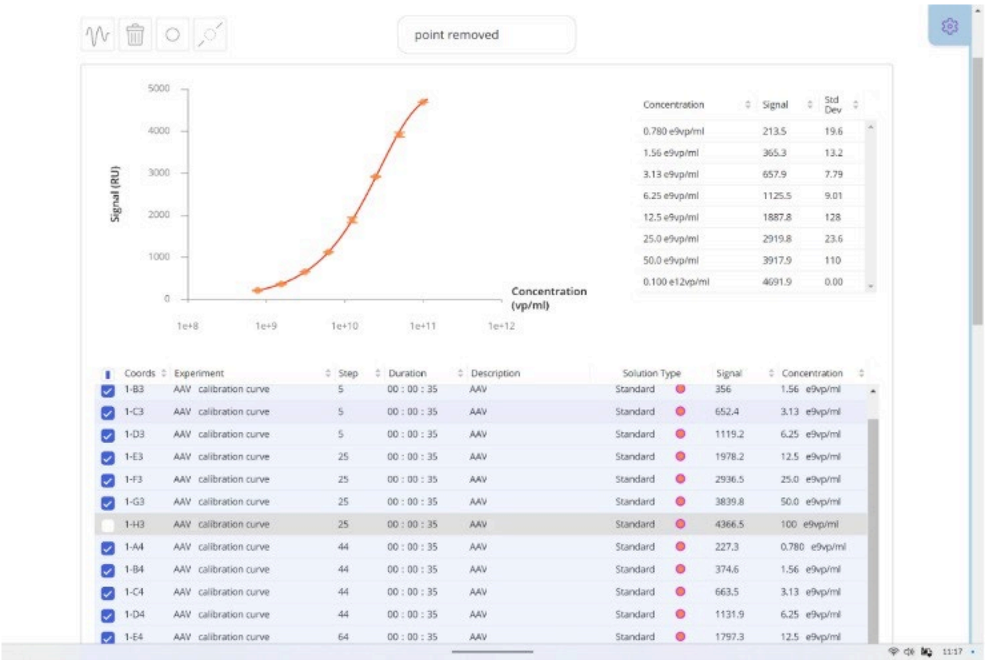


Figure 4.9 Edit or exclude standard curve points



4.2 SAMPLE QUANTIFICATION

- You can quantify AAV samples using a previously saved calibration curve. The AAV serotype used for the calibration must match that of the samples.
- From **the Experiments** page, tap the experiment containing the sample measurements.
  → See **Figure 4.10**
- On the experiment summary screen, tap **Analysis**.
  → See **Figure 4.11**
- A summary of measurements will appear, grouped by solution type. Note: All the measurements labelled as **Sample** will be used for quantification. Measurements labelled as **Standards** (if present) can also be used to **compensate for experimental variation** between the sample and calibration curve runs, improving quantification accuracy. Tap **New Chart.**
  → See **Figure 4.12**
- Tap **Import** to add a previously saved calibration curve to this analysis.
  → See **Figure 4.13**
- Select the analysis that contains the calibration curve you wish to use.
  → See **Figure 4.14**
- All curves associated with that analysis will appear. Tap the desired curve to select it.
  → See **Figure 4.15**
- Tap **New Chart**, then select **Quantify** to begin.
  → See **Figure 4.16**
- All sample wells will be quantified against the selected calibration curve. A plot will show the curve (orange line) and sample positions (blue dots).
  → See **Figure 4.17**
- A summary table will display for each sample:
  - Signal Compensation
  - Raw Concentration
  - Adjusted Concentration
    Tap Finalize to save the analysis.
    → See **Figure 4.18**
- To export the analysis, insert a USB drive and tap **Export**, then choose the desired format and location.
  → See **Figure 4.19**

Figure 4.10 Select experiment from the Experiments page

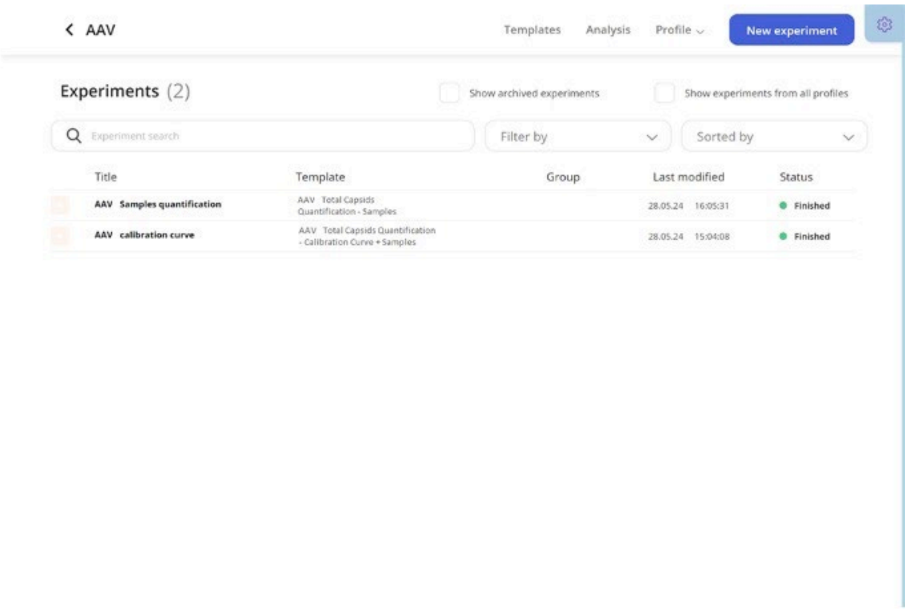


Figure 4.11 Tap Analysis from the experiment summary

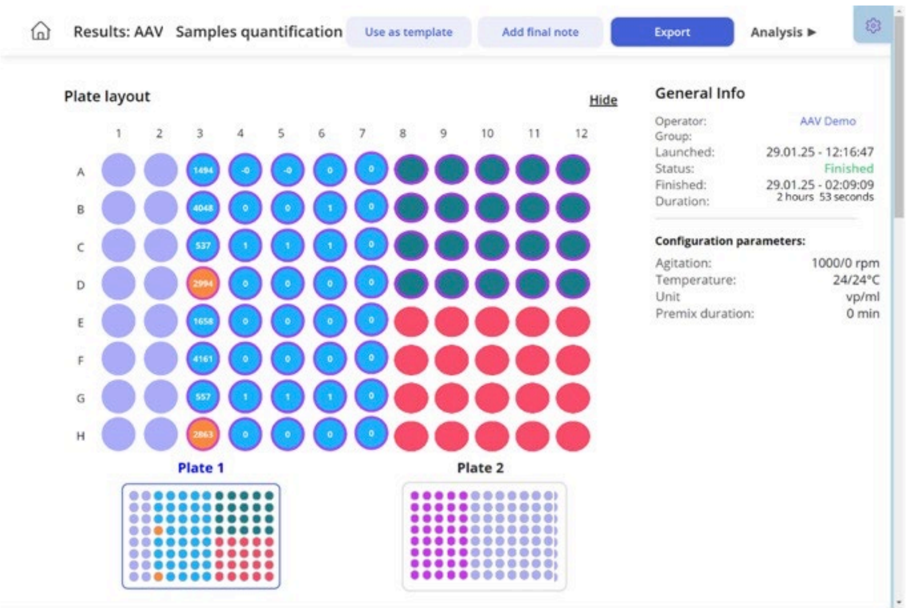


Figure 4.12 Tap New Chart to start

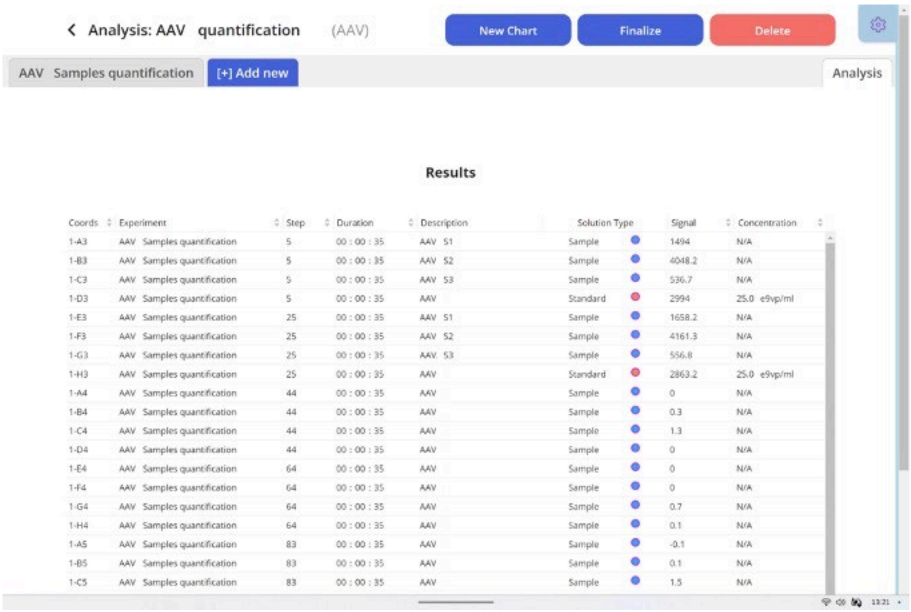


Figure 4.13 Tap Import to load a saved calibration curve

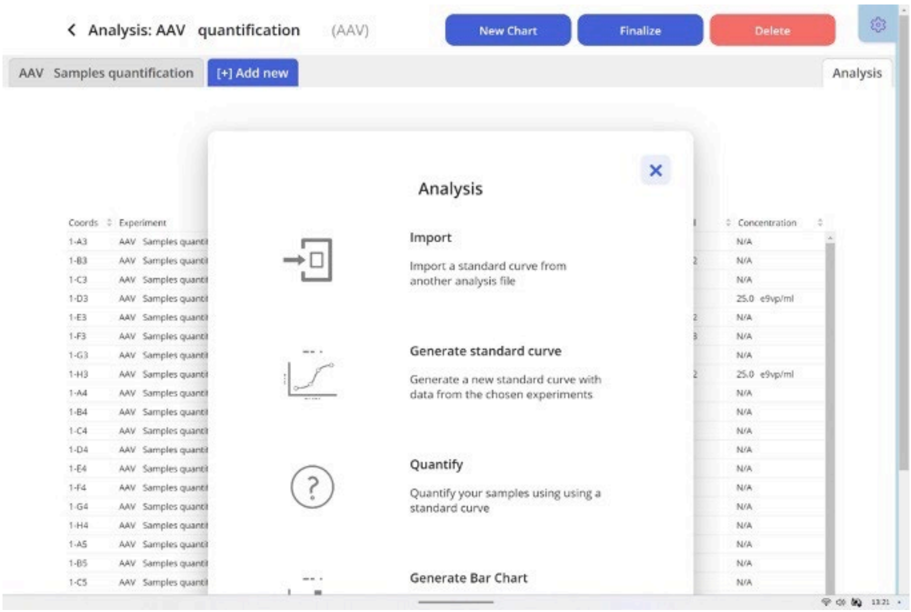


Figure 4.14 Select the analysis containing the desired curve

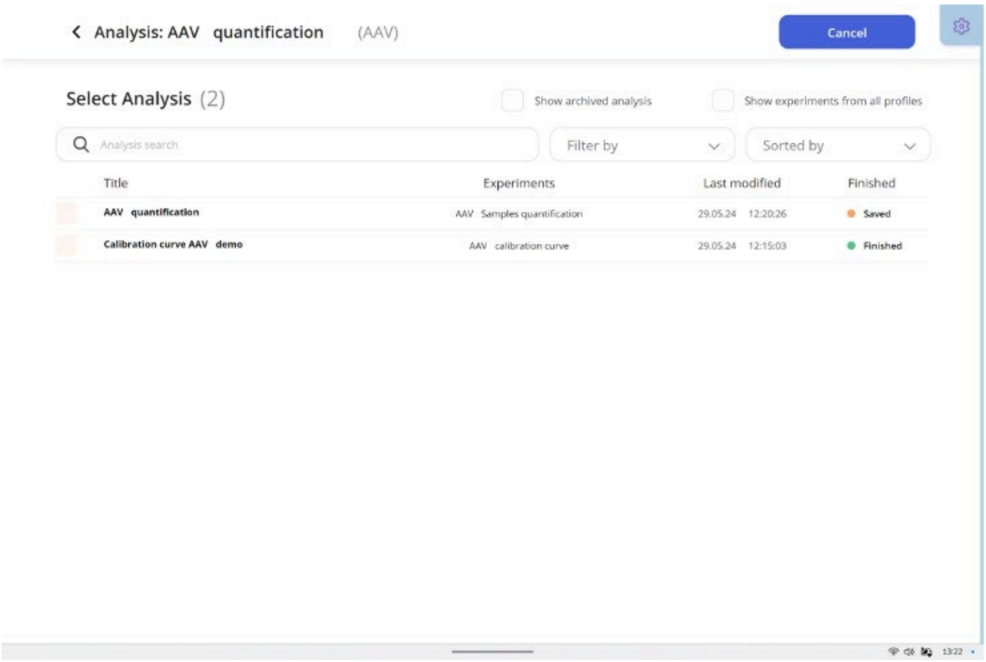


Figure 4.15 Choose a specific curve from the selected analysis

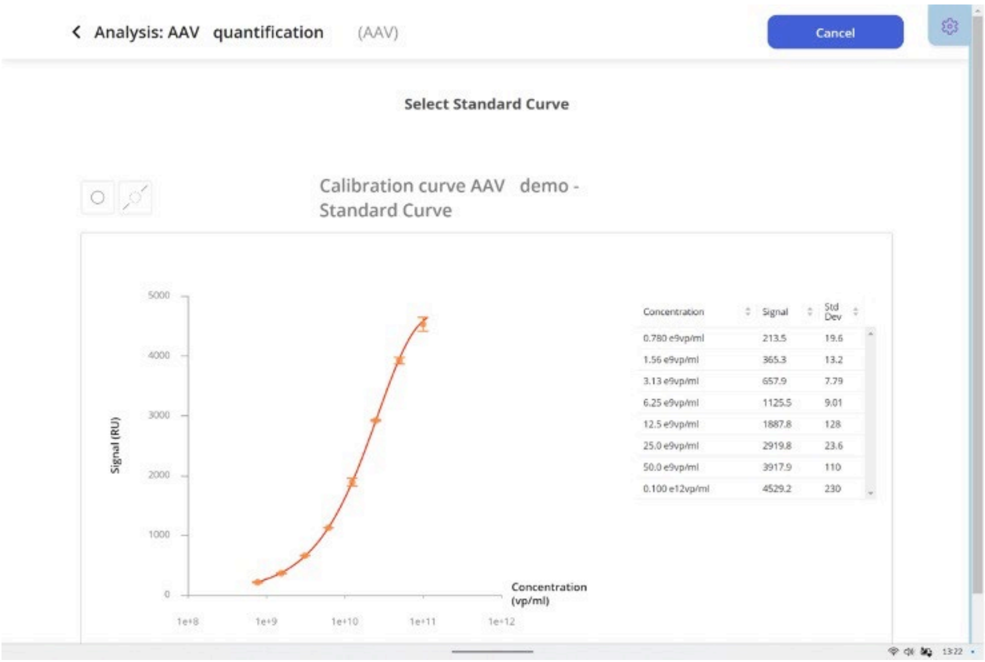


Figure 4.16 Tap Quantify to apply the curve to sample data

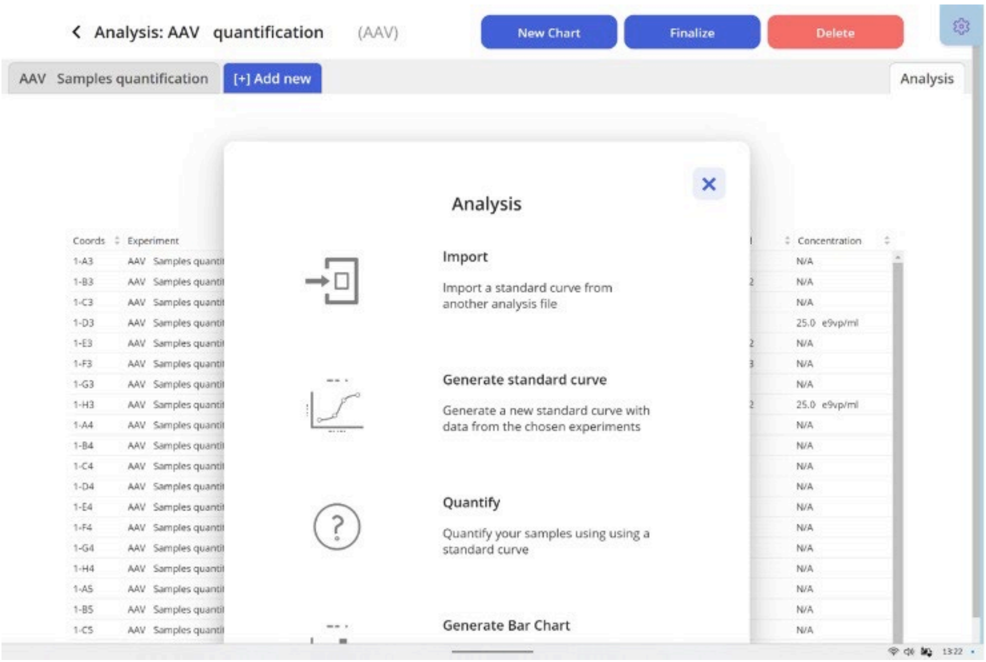


Figure 4.17 Samples plotted against the calibration curve

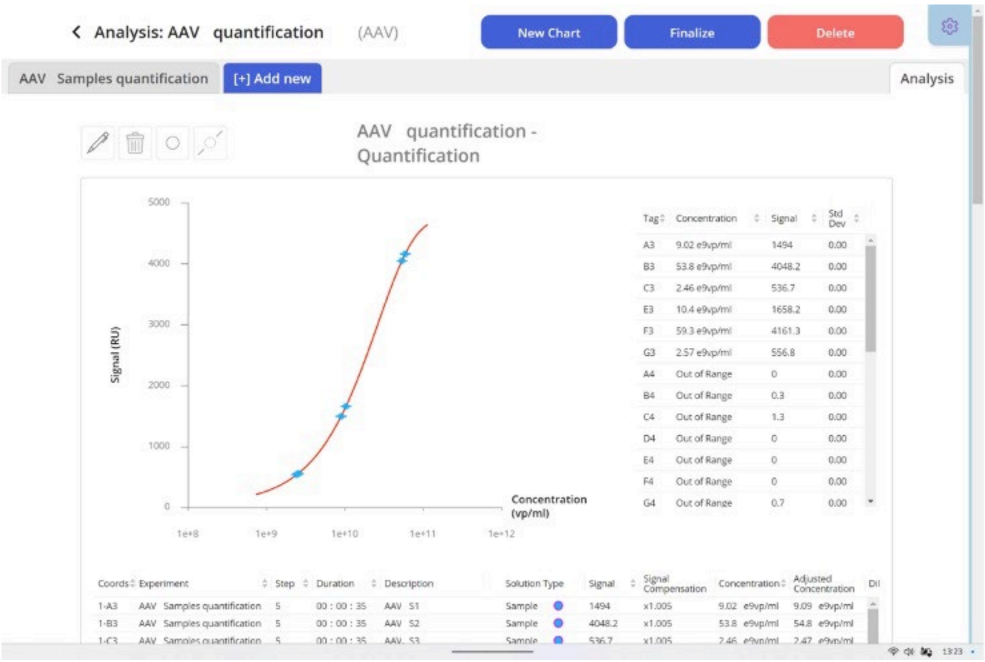


Figure 4.18 Summary of quantified sample results with compensation

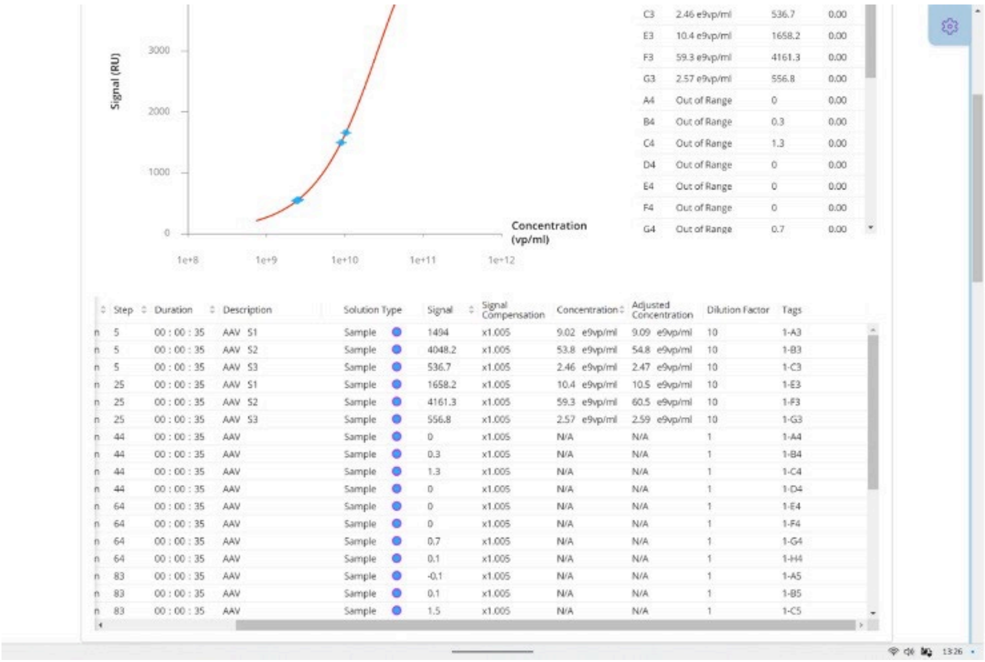
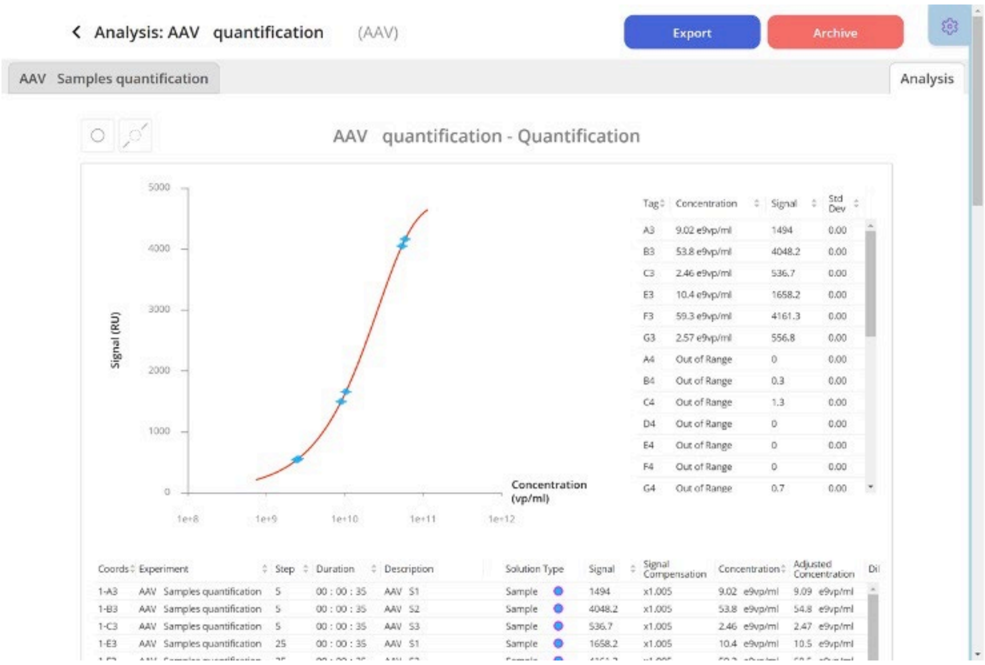


Figure 4.19 Export options for saving analysis data



5. Appendix

To prepare calibration standards, use validated AAV reference materials that match the serotype of your samples. The following suppliers and product codes are recommended:

Serotype	Product Name	Supplier	Product Code
AAV2	AAV2 empty capsids	Progen	66V020
AAV2	AAV2 reference material (empty capsids)	Charles River	RS-AAV2-ET
AAV5	AAV5 empty capsids	Progen	66V050
AAV6	AAV6 empty capsids	Progen	66V060
AAV8	AAV8 empty capsids	Progen	66V080

NOTE: Only validated reference materials should be used to ensure accurate quantification. Refer to the user guide from the supplier for concentration details. For other serotypes or questions about reference material compatibility, please contact **info@abselion.com**.

STORAGE AND STABILITY

- Store kit components at 2–8 °C.
- Do not freeze reagents.
- Sensors should remain sealed in their original foil pouch until use.
- Kit is stable until the expiration date indicated on the label.

ABSELION™

PRECISION MADE PRACTICAL

SAFETY INFORMATION

This kit is intended for **research use only**. Not for diagnostic or therapeutic use.

Handle all samples and reagents according to your institution's biosafety guidelines.

TRADEMARKS

MANUFACTURER

HexagonFab Ltd. (trading as **Abselion™**)
Unit 1, Cambridge House
Camboro Business Park
Oakington Road, Girton
Cambridge, CB3 0QH
United Kingdom

Scan to access User Manuals & Guides

For product information or technical support, please contact: **support@abselion.com**