ABSELION™
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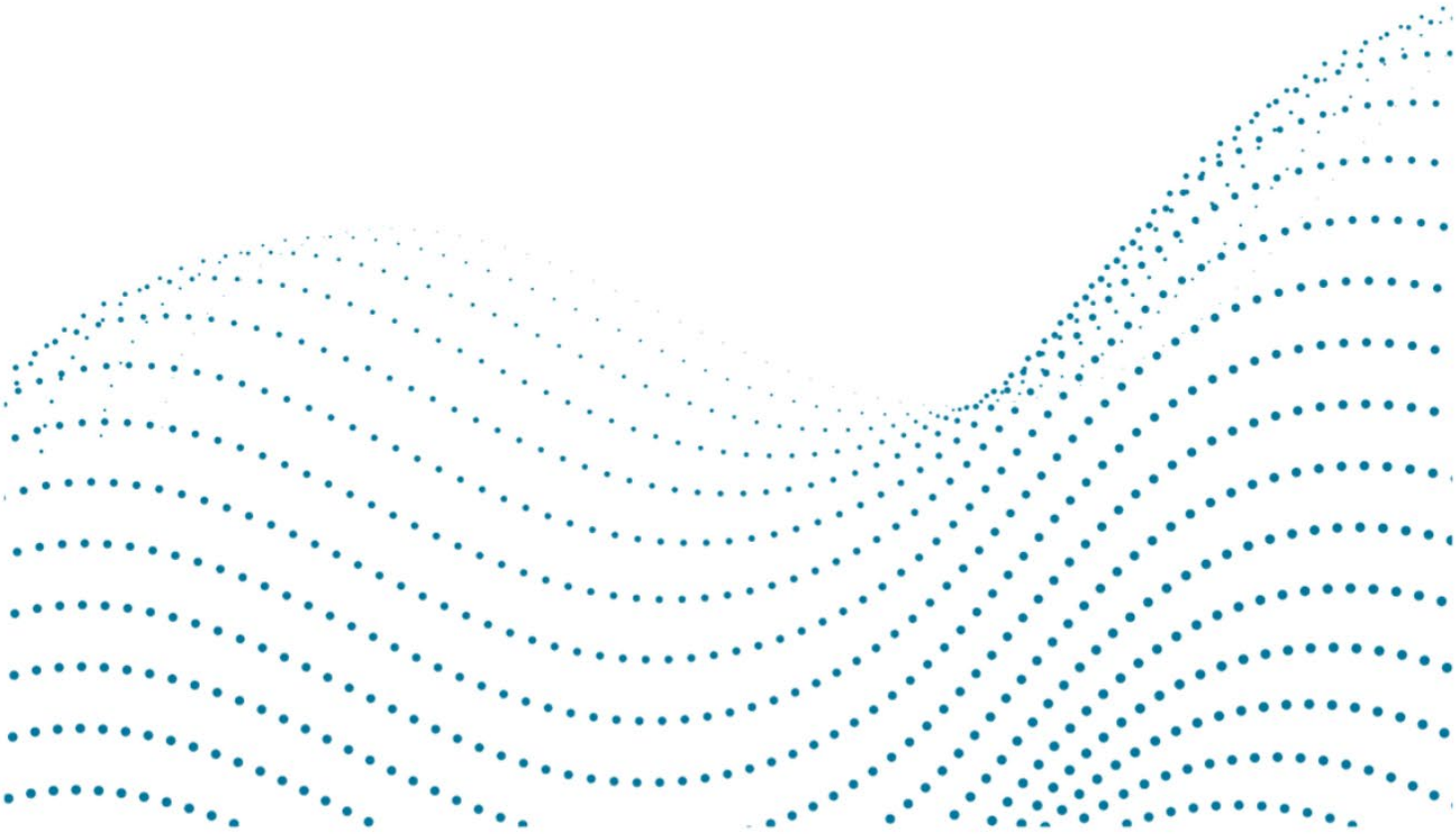
USER MANUAL

Tagged Protein Quantification Kit | His-tag

(Up to 80 Tests)



PRODUCT CODE: AK-His-004

VERSION 1.2
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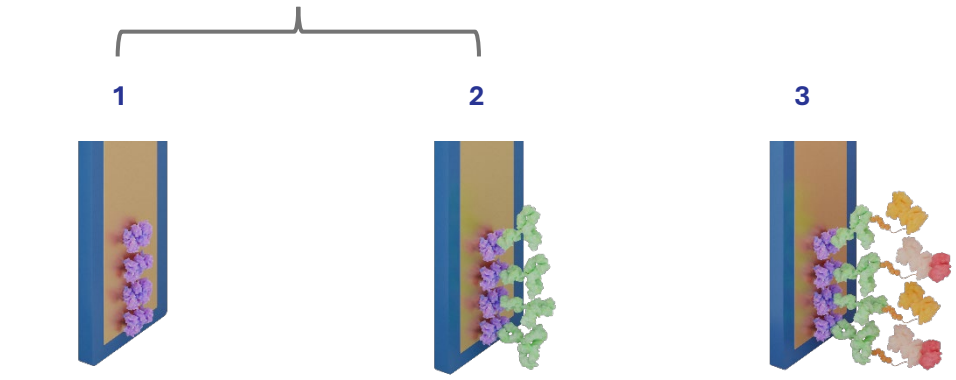
Introduction

The His-Tag Tagged Protein Quantification Kit is designed for rapid and reliable measurement of His-tagged proteins across a range of expression systems. Used with the **Amperia™** Protein Quantification System, the assay enables direct quantification from both crude and purified samples, delivering reproducible results with minimal hands-on time.

The assay follows a **premix competition format** (Figure 1), in which His-tagged proteins (analyte) in the sample compete with a **HRP-labelled His-tagged detection reagent** for binding to immobilized anti-His capture sites on the sensor surface. The resulting electrochemical signal is **inversely proportional** to analyte concentration, supporting accurate quantification across the nM-scale detection range*.

The included reagents are validated to deliver optimal performance, with key antibody components supplied by **GenScript**, incorporating its **THE™ His Tag Monoclonal Antibody** technology for high affinity and consistent assay performance.

Figure 1: Assay workflow schematic



1. Sensor surface with streptavidin coating.
2. Biotinylated anti-His antibody bound to sensor
3. Premixed sample and HRP-labelled His-tagged detection reagent applied, enabling signal generation.

NOTE:

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

**In the Tagged Protein Quantification Kit | His-Tag (AK-HIS-004), steps (1) and (2) are pre-completed during manufacturing. Sensors are supplied ready to use, allowing users to begin directly from the sample incubation and measurement step shown in (3).

Table of Contents

1 Kit Components

Each Tagged Protein Quantification Kit | His-tag (Product Code: AK-His-004) contains the following components:

- His-Tag Sensor | Tagged Protein Quantification (2 X SN-005-10): 20 Sensor Strips, up to 80 Tests
- 10 µg Detection Reagent | His Tag Quantification (A1-8036) (Provided by ACROBiosystems)
  NOTE: Ships at ambient temperature; store at −20 °C upon receipt.
- 10.5 mL Detection Dilution Buffer | His Tag Quantification (A1-8037)
- 30 mL Sample Dilution Buffer | His Tag Quantification (A1-8038)
- 125 mL Wash Buffer (A1-8023)
- 2 x 15 mL Substrate (A1-8026)
- 4 × 96-well Non-binding Plates (CN-001)

ADDITIONAL MATERIALS REQUIRED (NOT INCLUDED):

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.

For additional guidance on sensor storage and handling, refer to the Sensor Handling & Use Guide (Amperia™ System).

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

E	Std1	Std1	S	S	S	W	W	W	W	W	W
E	Std2	Std2	S	S	S	W	W	W	W	W	W
E	Std3	Std3	S	S	S	W	W	W	W	W	W
E	Std4	Std4	S	S	S	W	W	W	W	W	W
E	Std5	Std5	S	S	S	W	W	W	W	W	W
E	Std6	Std6	S	S	S	W	W	W	W	W	W
E	Std7	Std7	S	S	S	W	W	W	W	W	W
E	Std8	Std8	S	S	S	W	W	W	W	W	W

PLATE 2

DI	T	T	T	T	T	W	W	W	W	W	W
DI	T	T	T	T	T	W	W	W	W	W	W
DI	T	T	T	T	T	W	W	W	W	W	W
DI	T	T	T	T	T	W	W	W	W	W	W
DI	T	T	T	T	T	W	W	W	W	W	W
DI	T	T	T	T	T	W	W	W	W	W	W
DI	T	T	T	T	T	W	W	W	W	W	W
DI	T	T	T	T	T	W	W	W	W	W	W

Notation:

S: Measurement Wells
W: Wash Buffer (A1-8023)
Std1–Std8: Standards (see Section 2.1.2)
T: Substrate (A1-8026)
E: Empty Well
DI: Deionised water or PBS (not provided)

2.1.2 PREPARATION OF REAGENTS

Detection Reagent Preparation

Reconstitute the Detection Reagent | His Tag Quantification (A1-8036) to a final concentration of 0.95 µg/mL. Add **1 mL** of Detection Dilution Buffer | His Tag Quantification (A1-8037) directly into the vial containing the Detection Reagent. Mix gently with a pipette until the powder begins to dissolve.

Allow the vial to solubilize for **30–60 minutes** at room temperature with occasional gentle mixing. Once fully dissolved, transfer the solution into the bottle containing the remaining **A1-8037**. Mix well by slowly inverting the bottle.

Dispense 125 µL of detection reagent into each measurement well of Plate 1 being used as shown in the plate layout (**Figure 2.1**). Any remaining detection reagent can be stored for up to a week at 4°C with no impact on assay performance.

Calibrator Preparation

Dilute the reference protein into the Sample Dilution Buffer | His Tag Quantification (A1-8038) to prepare the concentrations listed in **Table 1**. The calibration curve is generated using an 8-point, 2× serial dilution. Use a calibrator that closely matches the properties and tag configuration of your target protein for best results.

NOTE:
For optimal performance, ensure the buffer composition matches that of your samples.

Table 1: Calibration curve concentrations

ID	Concentration (nM)
Std1	100.00
Std2	50.00
Std3	25.00
Std4	12.50
Std5	6.25
Std6	3.13
Std7	1.56
Std8	0.78

Dispense 125 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|His Tag Quantification (A1-8038) to fall within the calibration range (0.78 nM – 100 nM). Dispense 125 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

E	S	S	S	S	S	W	W	W	W	W	W
E	S	S	S	S	S	W	W	W	W	W	W
E	S	S	S	S	S	W	W	W	W	W	W
E	S	S	S	S	S	W	W	W	W	W	W
E	S	S	S	S	S	W	W	W	W	W	W
E	S	S	S	S	S	W	W	W	W	W	W
E	S	S	S	S	S	W	W	W	W	W	W
E	S	S	S	S	S	W	W	W	W	W	W

PLATE 2

DI	T	T	T	T	T	W	W	W	W	W	W
DI	T	T	T	T	T	W	W	W	W	W	W
DI	T	T	T	T	T	W	W	W	W	W	W
DI	T	T	T	T	T	W	W	W	W	W	W
DI	T	T	T	T	T	W	W	W	W	W	W
DI	T	T	T	T	T	W	W	W	W	W	W
DI	T	T	T	T	T	W	W	W	W	W	W
DI	T	T	T	T	T	W	W	W	W	W	W

Notation:

S: Measurement wells
W: Wash Buffer (A1-8023)
T: Substrate (A1-8026)
E: Empty Well
DI: Deionised water or PBS (not provided)

2.2.2 PREPARATION OF REAGENTS

Detection Reagent Preparation

Reconstitute the Detection Reagent | His Tag Quantification (A1-8036) to a final concentration of 0.95 µg/mL. Add **1 mL** of Detection Dilution Buffer | His Tag Quantification (A1-8037) directly into the vial containing the Detection Reagent. Mix gently with a pipette until the powder begins to dissolve.

Allow the vial to solubilize for **30–60 minutes** at room temperature with occasional gentle mixing. Once fully dissolved, transfer the solution into the bottle containing the remaining **A1-8037**. Mix well by slowly inverting the bottle.

Dispense 125 µL of detection reagent into each measurement well of Plate 1 being used as shown in the plate layout (**Figure 2.1**). Any remaining detection reagent can be stored for up to a week at 4°C with no impact on assay performance.

Samples

Dilute your samples using the Sample Dilution Buffer | His Tag Quantification (A1-8038) to fall within the calibration range (0.78nM – 100nM). Dispense 125 µL of each diluted sample into the appropriate wells (**Figure 2.1**).

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., 10 nM), 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

E	S	S	S	S	S	W	W	W	W	W	W
E	S	S	S	S	S	W	W	W	W	W	W
E	S	S	S	S	S	W	W	W	W	W	W
E	S	S	S	S	S	W	W	W	W	W	W
E	S	S	S	S	DI	W	W	W	W	W	W
E	S	S	S	S	DI	W	W	W	W	W	W
E	S	S	S	S	DI	W	W	W	W	W	W
E	S	S	S	S	DI	W	W	W	W	W	W

PLATE 2

DI	T	T	T	T	T	W	W	W	W	W	W
DI	T	T	T	T	T	W	W	W	W	W	W
DI	T	T	T	T	T	W	W	W	W	W	W
DI	T	T	T	T	T	W	W	W	W	W	W
DI	T	T	T	T	DI	W	W	W	W	W	W
DI	T	T	T	T	DI	W	W	W	W	W	W
DI	T	T	T	T	DI	W	W	W	W	W	W
DI	T	T	T	T	DI	W	W	W	W	W	W

2

32 MEASUREMENT WELLS USING 8 SENSOR STRIPS

PLATE 1

E	S	S	S	S	DI	W	W	W	W	W	W
E	S	S	S	S	DI	W	W	W	W	W	W
E	S	S	S	S	DI	W	W	W	W	W	W
E	S	S	S	S	DI	W	W	W	W	W	W
E	S	S	S	S	DI	W	W	W	W	W	W
E	S	S	S	S	DI	W	W	W	W	W	W
E	S	S	S	S	DI	W	W	W	W	W	W
E	S	S	S	S	DI	W	W	W	W	W	W

PLATE 2

DI	T	T	T	T	DI	W	W	W	W	W	W
DI	T	T	T	T	DI	W	W	W	W	W	W
DI	T	T	T	T	DI	W	W	W	W	W	W
DI	T	T	T	T	DI	W	W	W	W	W	W
DI	T	T	T	T	DI	W	W	W	W	W	W
DI	T	T	T	T	DI	W	W	W	W	W	W
DI	T	T	T	T	DI	W	W	W	W	W	W
DI	T	T	T	T	DI	W	W	W	W	W	W

3

28 MEASUREMENT WELLS USING 7 SENSOR STRIPS

PLATE 1

E	S	S	S	S	DI	W	W	W	W	W	W
E	S	S	S	S	DI	W	W	W	W	W	W
E	S	S	S	S	DI	W	W	W	W	W	W
E	S	S	S	S	DI	W	W	W	W	W	W
E	S	S	S	DI	DI	W	W	W	W	W	W
E	S	S	S	DI	DI	W	W	W	W	W	W
E	S	S	S	DI	DI	W	W	W	W	W	W
E	S	S	S	DI	DI	W	W	W	W	W	W

PLATE 2

DI	T	T	T	T	DI	W	W	W	W	W	W
DI	T	T	T	T	DI	W	W	W	W	W	W
DI	T	T	T	T	DI	W	W	W	W	W	W
DI	T	T	T	T	DI	W	W	W	W	W	W
DI	T	T	T	DI	DI	W	W	W	W	W	W
DI	T	T	T	DI	DI	W	W	W	W	W	W
DI	T	T	T	DI	DI	W	W	W	W	W	W
DI	T	T	T	DI	DI	W	W	W	W	W	W

4

24 MEASUREMENT WELLS USING 6 SENSOR STRIPS

PLATE 1

E	S	S	S	DI	DI	W	W	W	W	W	W
E	S	S	S	DI	DI	W	W	W	W	W	W
E	S	S	S	DI	DI	W	W	W	W	W	W
E	S	S	S	DI	DI	W	W	W	W	W	W
E	S	S	S	DI	DI	W	W	W	W	W	W
E	S	S	S	DI	DI	W	W	W	W	W	W
E	S	S	S	DI	DI	W	W	W	W	W	W
E	S	S	S	DI	DI	W	W	W	W	W	W

PLATE 2

DI	T	T	T	DI	DI	W	W	W	W	W	W
DI	T	T	T	DI	DI	W	W	W	W	W	W
DI	T	T	T	DI	DI	W	W	W	W	W	W
DI	T	T	T	DI	DI	W	W	W	W	W	W
DI	T	T	T	DI	DI	W	W	W	W	W	W
DI	T	T	T	DI	DI	W	W	W	W	W	W
DI	T	T	T	DI	DI	W	W	W	W	W	W
DI	T	T	T	DI	DI	W	W	W	W	W	W

5
20 MEASUREMENT WELLS USING 5 SENSOR STRIPS

PLATE 1

E	S	S	S	DI	DI	W	W	W	W	W	W
E	S	S	S	DI	DI	W	W	W	W	W	W
E	S	S	S	DI	DI	W	W	W	W	W	W
E	S	S	S	DI	DI	W	W	W	W	W	W
E	S	S	DI	DI	DI	W	W	W	W	W	W
E	S	S	DI	DI	DI	W	W	W	W	W	W
E	S	S	DI	DI	DI	W	W	W	W	W	W
E	S	S	DI	DI	DI	W	W	W	W	W	W

PLATE 2

DI	T	T	T	DI	DI	W	W	W	W	W	W
DI	T	T	T	DI	DI	W	W	W	W	W	W
DI	T	T	T	DI	DI	W	W	W	W	W	W
DI	T	T	T	DI	DI	W	W	W	W	W	W
DI	T	T	DI	DI	DI	W	W	W	W	W	W
DI	T	T	DI	DI	DI	W	W	W	W	W	W
DI	T	T	DI	DI	DI	W	W	W	W	W	W
DI	T	T	DI	DI	DI	W	W	W	W	W	W

6
16 MEASUREMENT WELLS USING 4 SENSOR STRIPS

PLATE 1

E	S	S	DI	DI	DI	W	W	W	W	W	W
E	S	S	DI	DI	DI	W	W	W	W	W	W
E	S	S	DI	DI	DI	W	W	W	W	W	W
E	S	S	DI	DI	DI	W	W	W	W	W	W
E	S	S	DI	DI	DI	W	W	W	W	W	W
E	S	S	DI	DI	DI	W	W	W	W	W	W
E	S	S	DI	DI	DI	W	W	W	W	W	W
E	S	S	DI	DI	DI	W	W	W	W	W	W

PLATE 2

DI	T	T	DI	DI	DI	W	W	W	W	W	W
DI	T	T	DI	DI	DI	W	W	W	W	W	W
DI	T	T	DI	DI	DI	W	W	W	W	W	W
DI	T	T	DI	DI	DI	W	W	W	W	W	W
DI	T	T	DI	DI	DI	W	W	W	W	W	W
DI	T	T	DI	DI	DI	W	W	W	W	W	W
DI	T	T	DI	DI	DI	W	W	W	W	W	W
DI	T	T	DI	DI	DI	W	W	W	W	W	W

7

12MEASUREMENT WELLS USING 3 SENSOR STRIPS

PLATE 1

E	S	S	DI	DI	DI	W	W	W	W	W	W
E	S	S	DI	DI	DI	W	W	W	W	W	W
E	S	S	DI	DI	DI	W	W	W	W	W	W
E	S	S	DI	DI	DI	W	W	W	W	W	W
E	S	DI	DI	DI	DI	W	W	W	W	W	W
E	S	DI	DI	DI	DI	W	W	W	W	W	W
E	S	DI	DI	DI	DI	W	W	W	W	W	W
E	S	DI	DI	DI	DI	W	W	W	W	W	W

PLATE 2

DI	T	T	DI	DI	DI	W	W	W	W	W	W
DI	T	T	DI	DI	DI	W	W	W	W	W	W
DI	T	T	DI	DI	DI	W	W	W	W	W	W
DI	T	T	DI	DI	DI	W	W	W	W	W	W
DI	T	DI	DI	DI	DI	W	W	W	W	W	W
DI	T	DI	DI	DI	DI	W	W	W	W	W	W
DI	T	DI	DI	DI	DI	W	W	W	W	W	W
DI	T	DI	DI	DI	DI	W	W	W	W	W	W

8

8 MEASUREMENT WELLS USING 2 SENSOR STRIPS

PLATE 1

E	S	DI	DI	DI	DI	W	W	W	W	W	W
E	S	DI	DI	DI	DI	W	W	W	W	W	W
E	S	DI	DI	DI	DI	W	W	W	W	W	W
E	S	DI	DI	DI	DI	W	W	W	W	W	W
E	S	DI	DI	DI	DI	W	W	W	W	W	W
E	S	DI	DI	DI	DI	W	W	W	W	W	W
E	S	DI	DI	DI	DI	W	W	W	W	W	W
E	S	DI	DI	DI	DI	W	W	W	W	W	W

PLATE 2

DI	T	DI	DI	DI	DI	W	W	W	W	W	W
DI	T	DI	DI	DI	DI	W	W	W	W	W	W
DI	T	DI	DI	DI	DI	W	W	W	W	W	W
DI	T	DI	DI	DI	DI	W	W	W	W	W	W
DI	T	DI	DI	DI	DI	W	W	W	W	W	W
DI	T	DI	DI	DI	DI	W	W	W	W	W	W
DI	T	DI	DI	DI	DI	W	W	W	W	W	W
DI	T	DI	DI	DI	DI	W	W	W	W	W	W

9

4 MEASUREMENT WELLS USING 1 SENSOR STRIPS

PLATE 1

E	S	DI	DI	DI	DI	W	W	W	W	W	W
E	S	DI	DI	DI	DI	W	W	W	W	W	W
E	S	DI	DI	DI	DI	W	W	W	W	W	W
E	S	DI	DI	DI	DI	W	W	W	W	W	W
E	DI	DI	DI	DI	DI	W	W	W	W	W	W
E	DI	DI	DI	DI	DI	W	W	W	W	W	W
E	DI	DI	DI	DI	DI	W	W	W	W	W	W
E	DI	DI	DI	DI	DI	W	W	W	W	W	W

PLATE 2

DI	T	DI	DI	DI	DI	W	W	W	W	W	W
DI	T	DI	DI	DI	DI	W	W	W	W	W	W
DI	T	DI	DI	DI	DI	W	W	W	W	W	W
DI	T	DI	DI	DI	DI	W	W	W	W	W	W
DI	DI	DI	DI	DI	DI	W	W	W	W	W	W
DI	DI	DI	DI	DI	DI	W	W	W	W	W	W
DI	DI	DI	DI	DI	DI	W	W	W	W	W	W
DI	DI	DI	DI	DI	DI	W	W	W	W	W	W

Notation:

S: Measurement Wells
W: Wash Buffer (A1-8023)
T: Substrate (A1-8026)
E: Empty Well
DI: Deionised water or PBS (not provided)

3 Instrument Setup

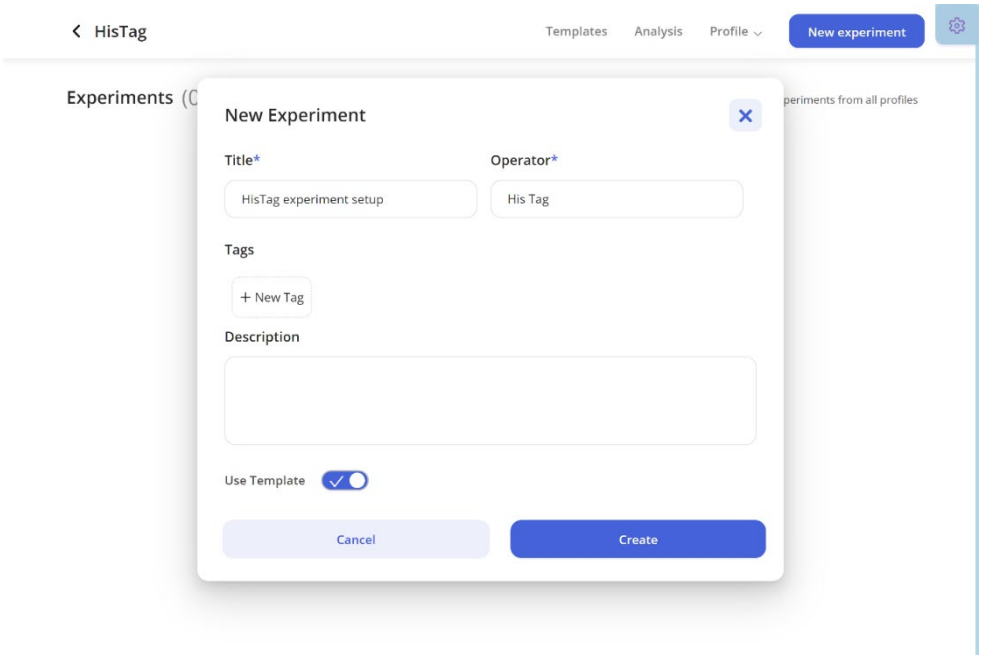
This section describes how to set up an experiment in the Amperia™ system using a predefined template. The workflow includes creating the experiment, assigning wells, loading plates and sensors, and starting the run.

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.

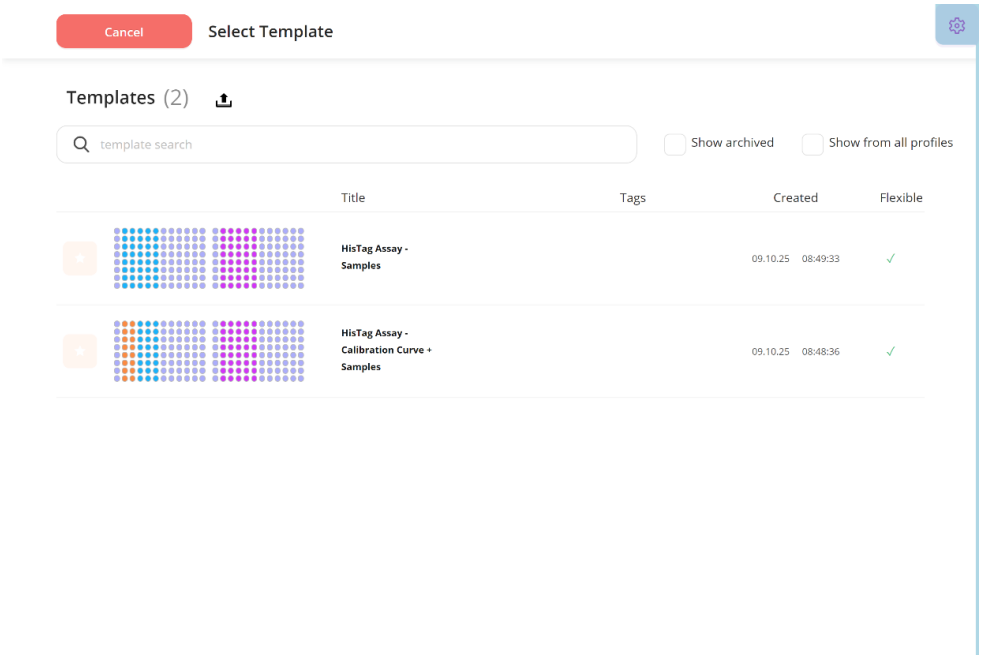


3.2 RUNNING THE EXPERIMENT

Select Template

Choose **HisTag Assay – Calibration Curve + Samples**
Tap **Create** again to confirm → See **Figure 3.2**

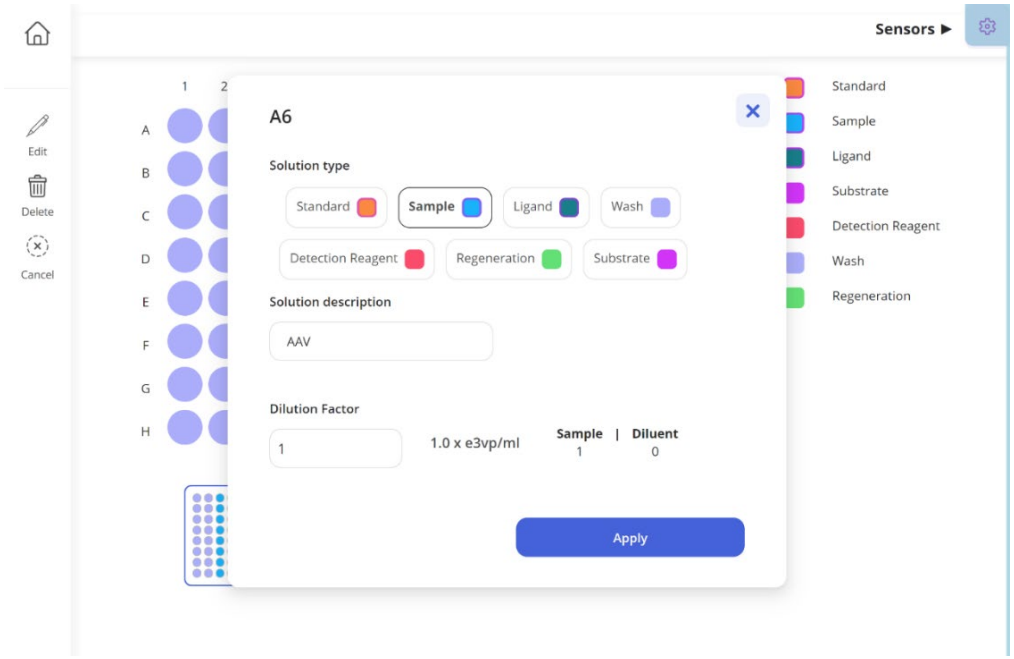
Figure 3.2. Selecting the appropriate template for HisTag quantification.



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

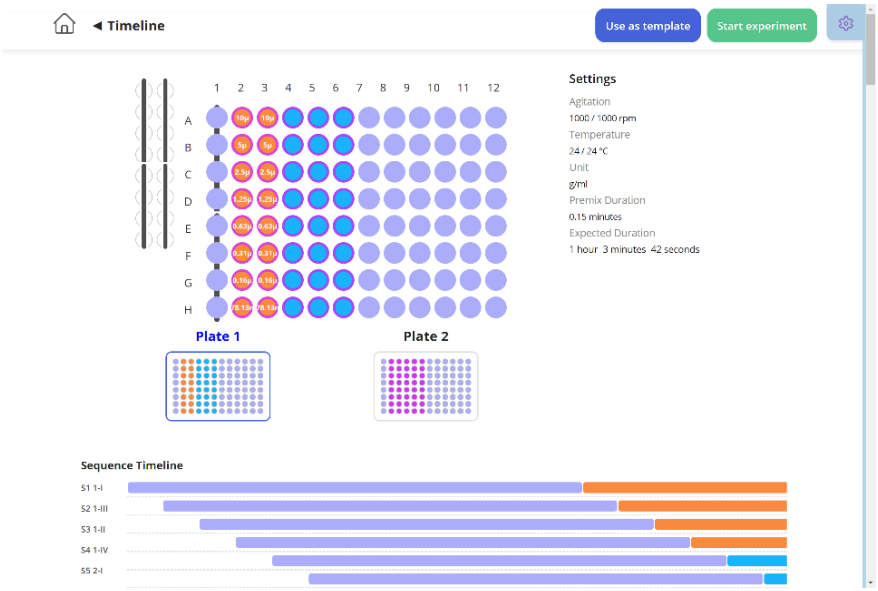
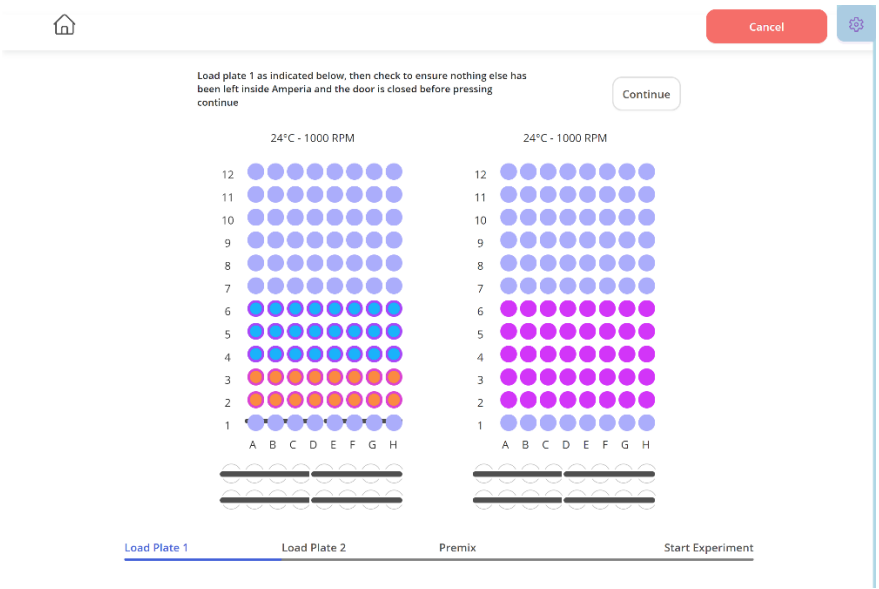


Figure 3.5 Load plate



3.3 SENSOR STRIP REQUIREMENTS AND POSITIONING

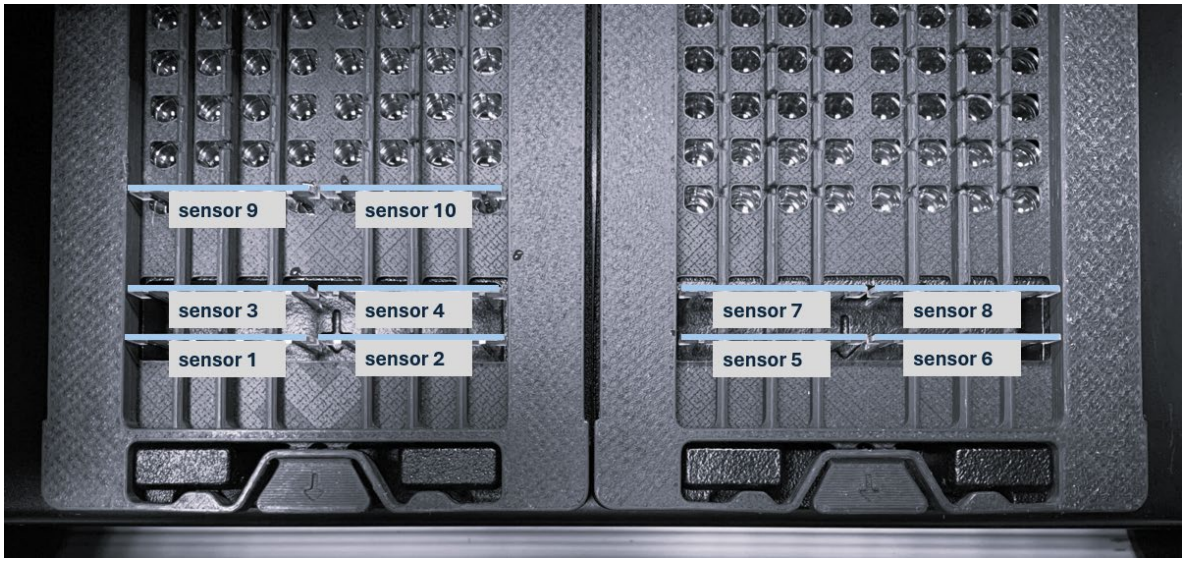
Each sensor strip supports four wells. Use **Table 2** to determine the number of strips needed and refer to **Figure 3.6** for their physical positions on the plate, which shows all sensor positions (1–10) on the Amperia™ plate layout.

Note: Sensors 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 His-tagged protein 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

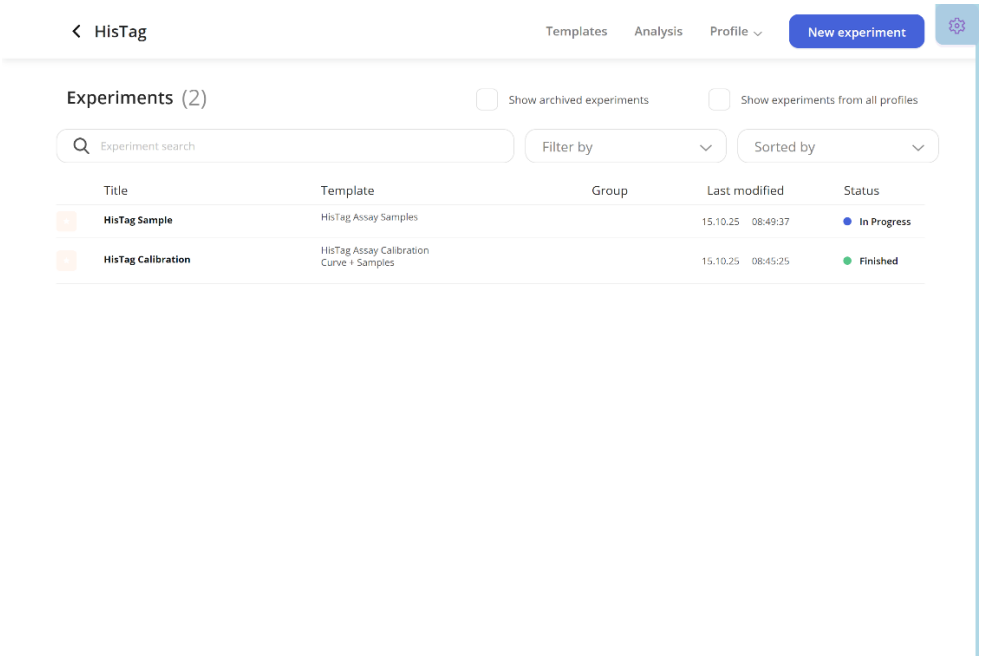


Figure 4.2 Experiment summary window

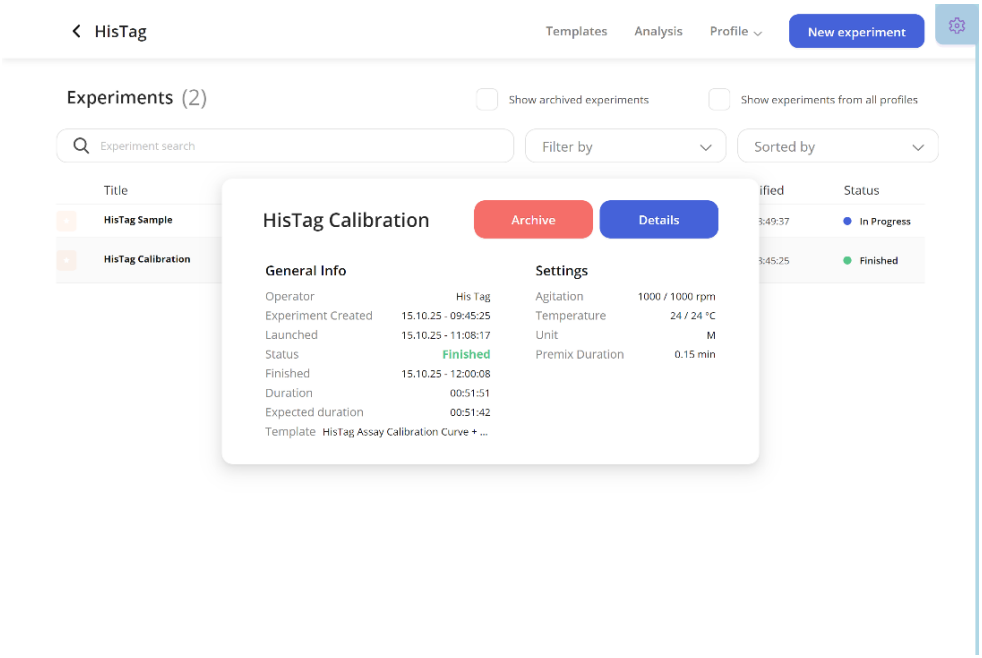


Figure 4.3 Tap Analysis to view existing or create new analysis

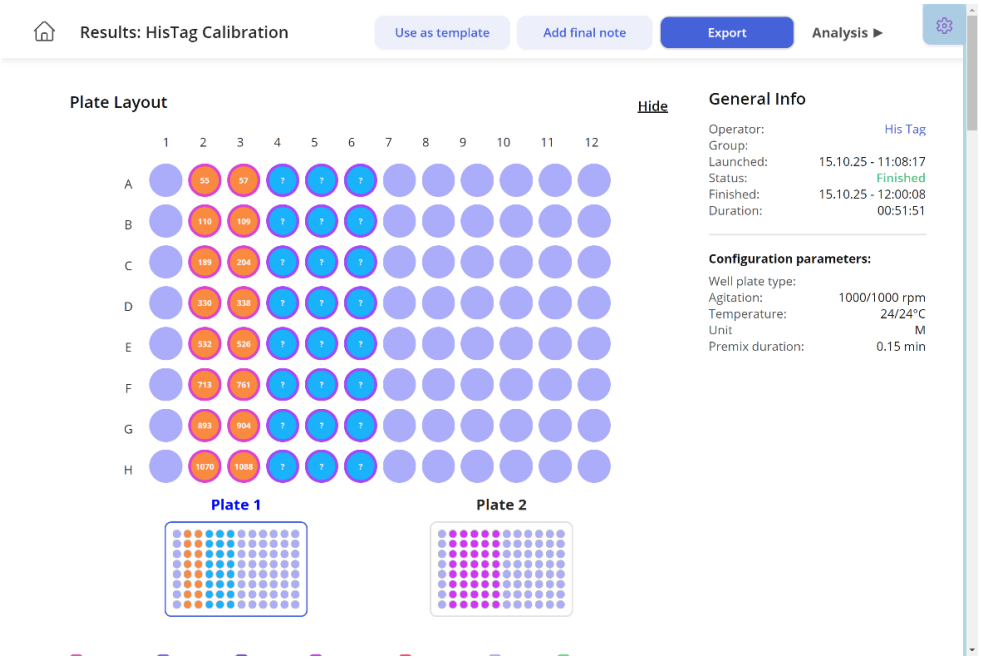


Figure 4.4 Tap on New Analysis to start

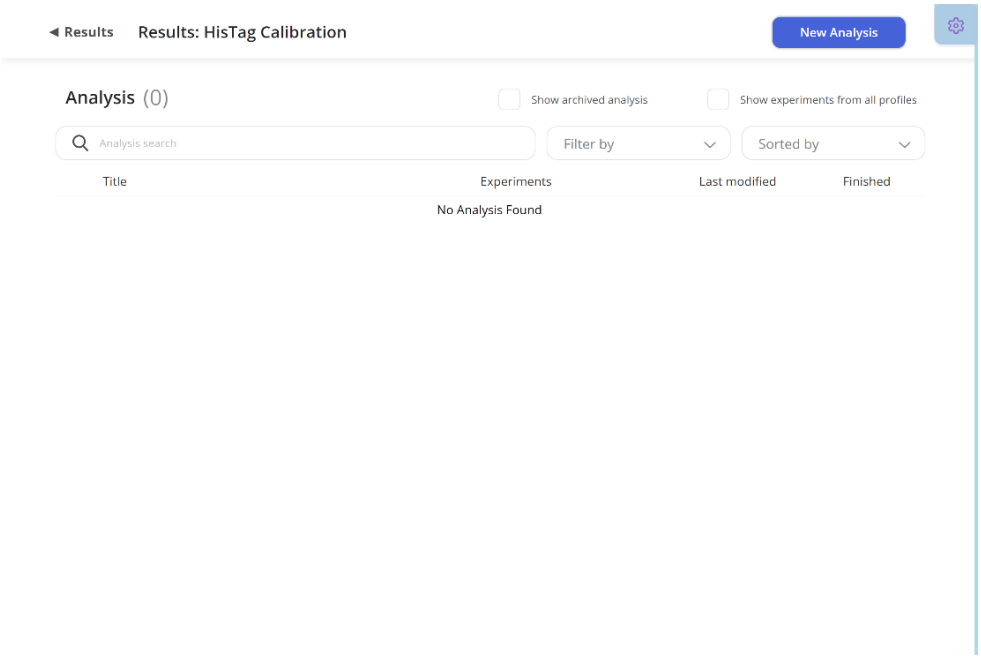


Figure 4.5 Name your new analysis

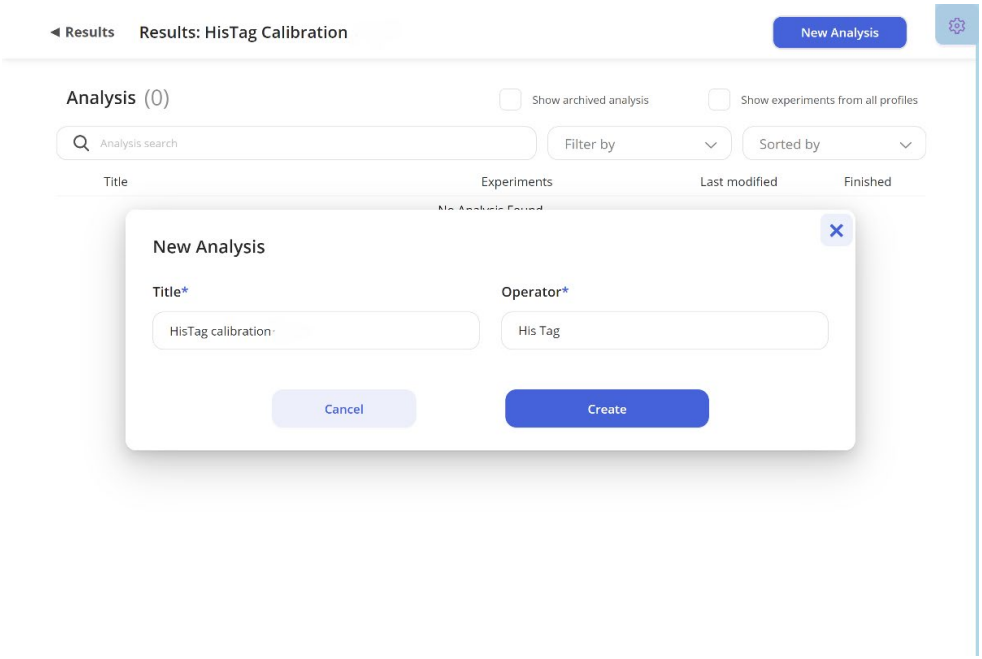


Figure 4.6 Overview of standard measurements grouped by type

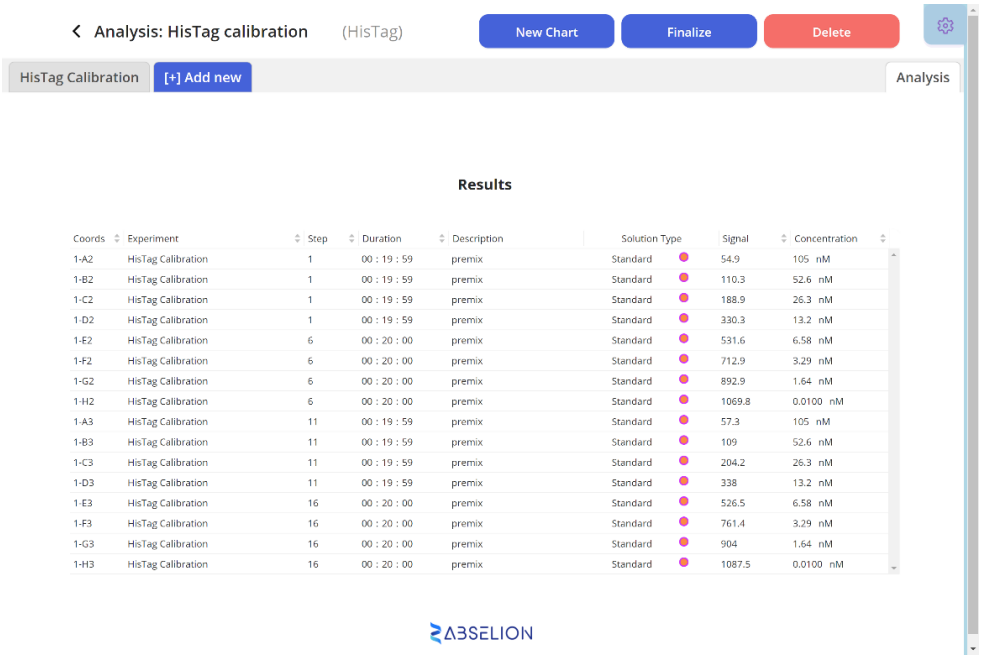


Figure 4.7 Tap to generate a standard curve

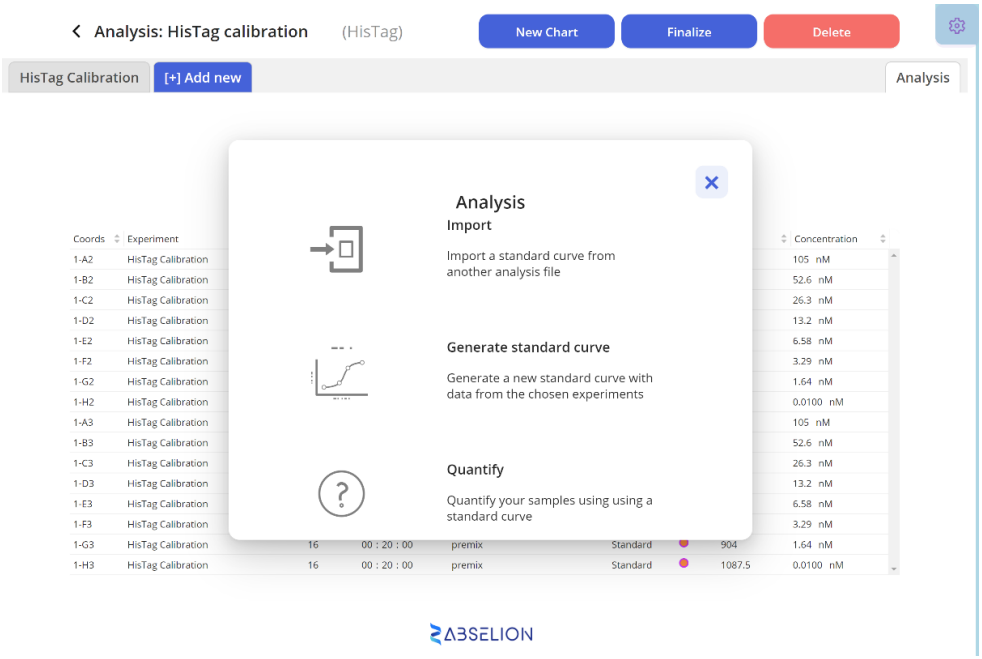


Figure 4.8 Auto-generated standard curve

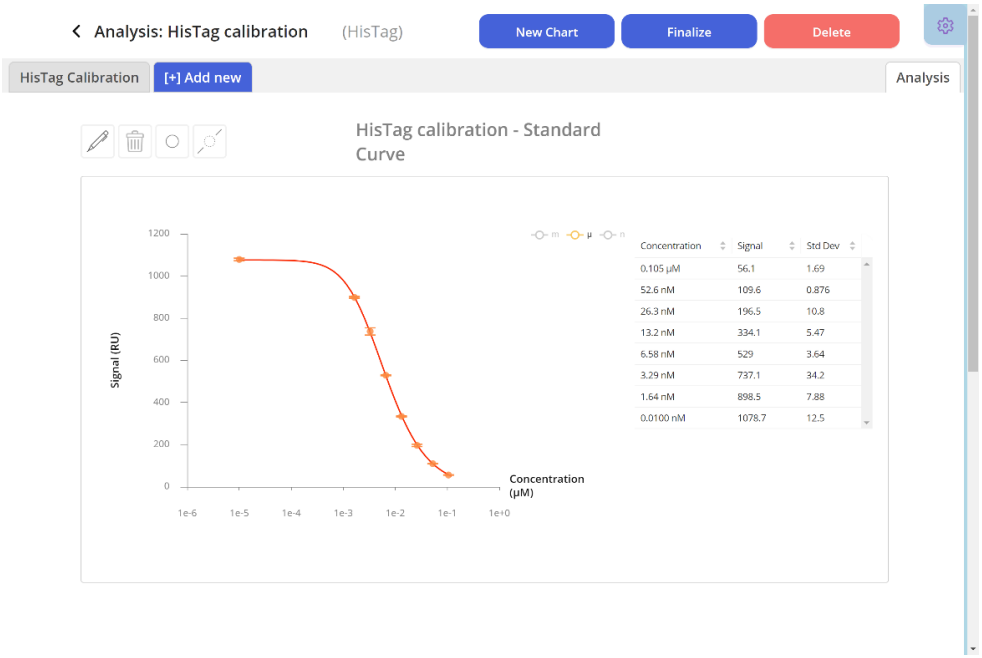
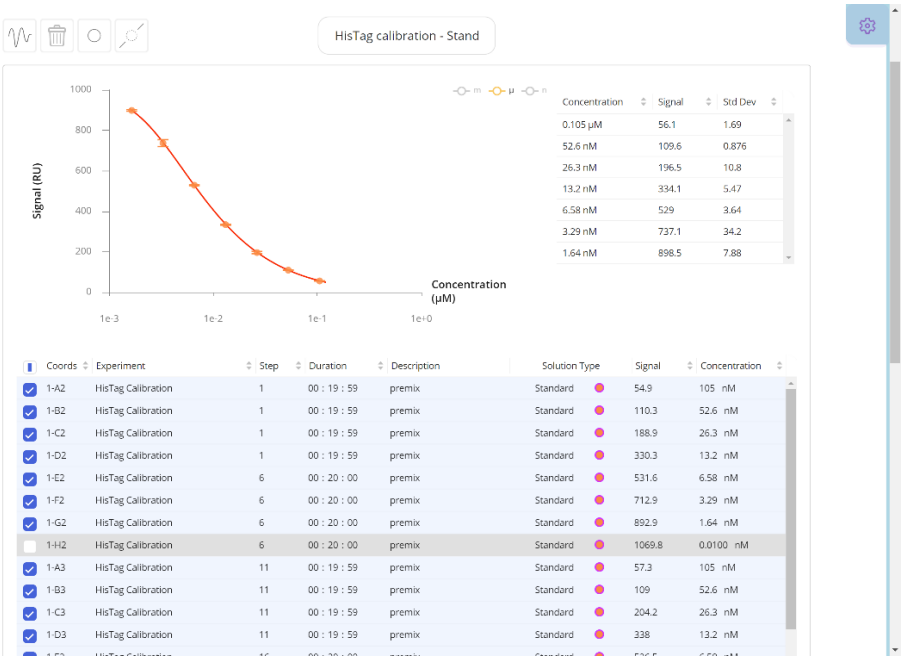


Figure 4.9 Edit or exclude standard curve points



4.2 SAMPLE QUANTIFICATION

- You can quantify His-tagged samples using a previously saved calibration curve. Use a calibrator that closely matches the properties and tag configuration of your target protein and ensure the buffer composition is consistent with your samples for optimal performance.
- 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

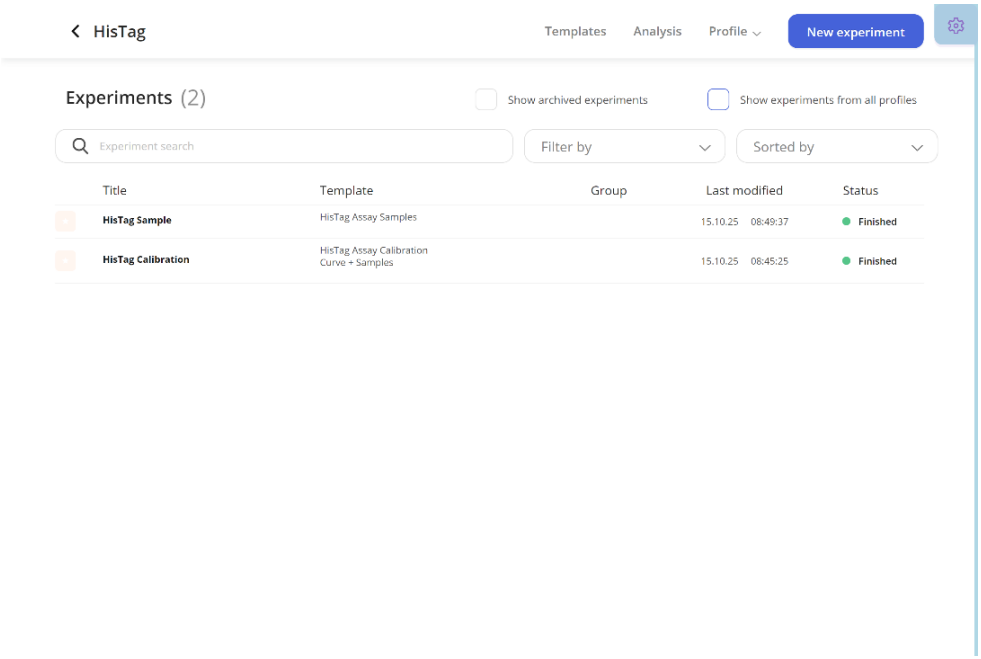


Figure 4.11 Tap Analysis from the experiment summary

Figure 4.12 Tap New Chart to start

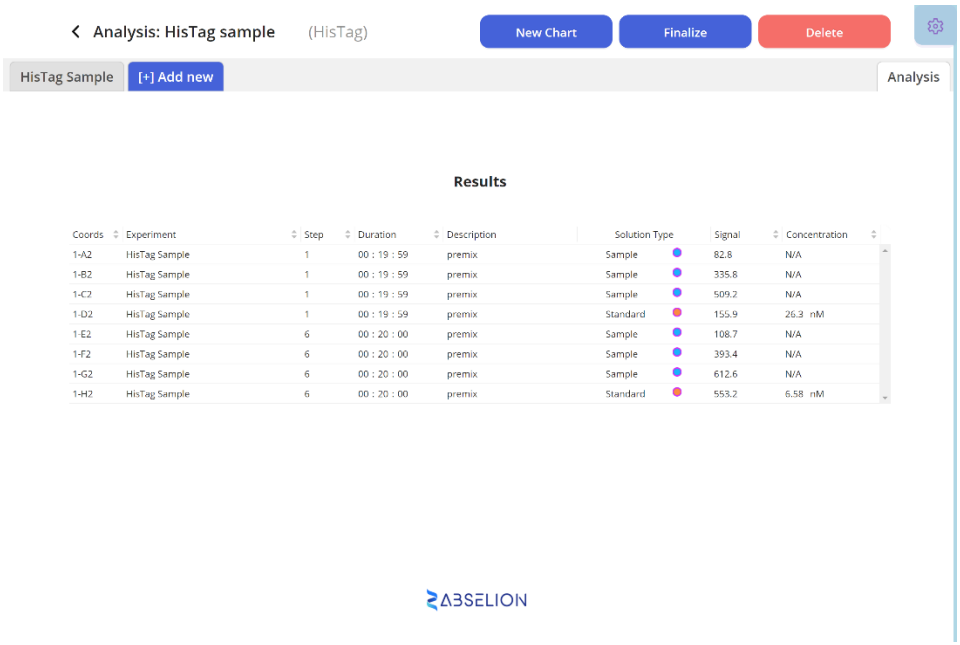


Figure 4.13 Tap Import to load a saved calibration curve

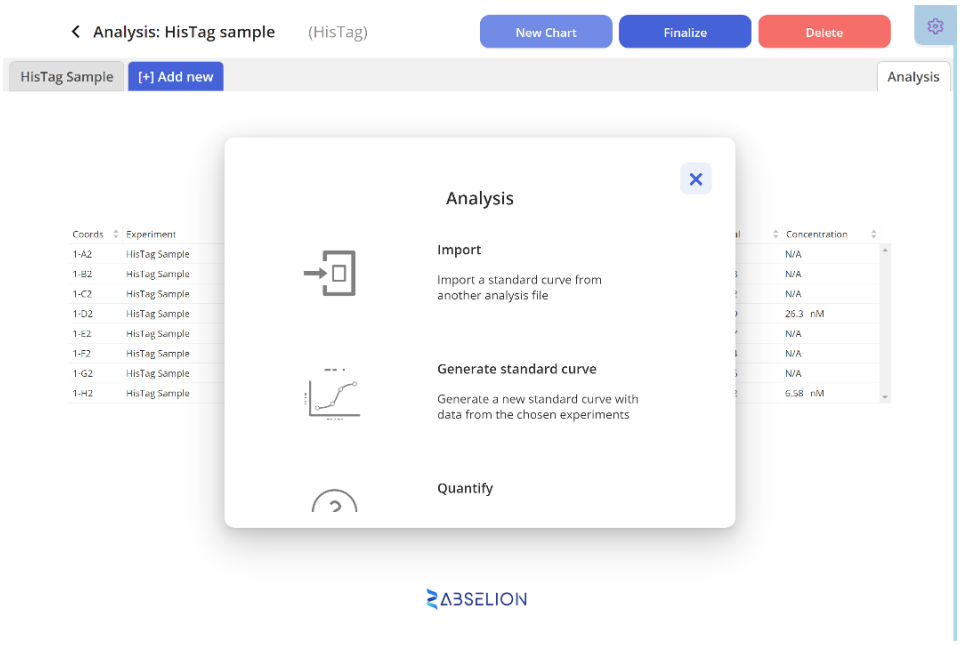


Figure 4.14 Select the analysis containing the desired curve

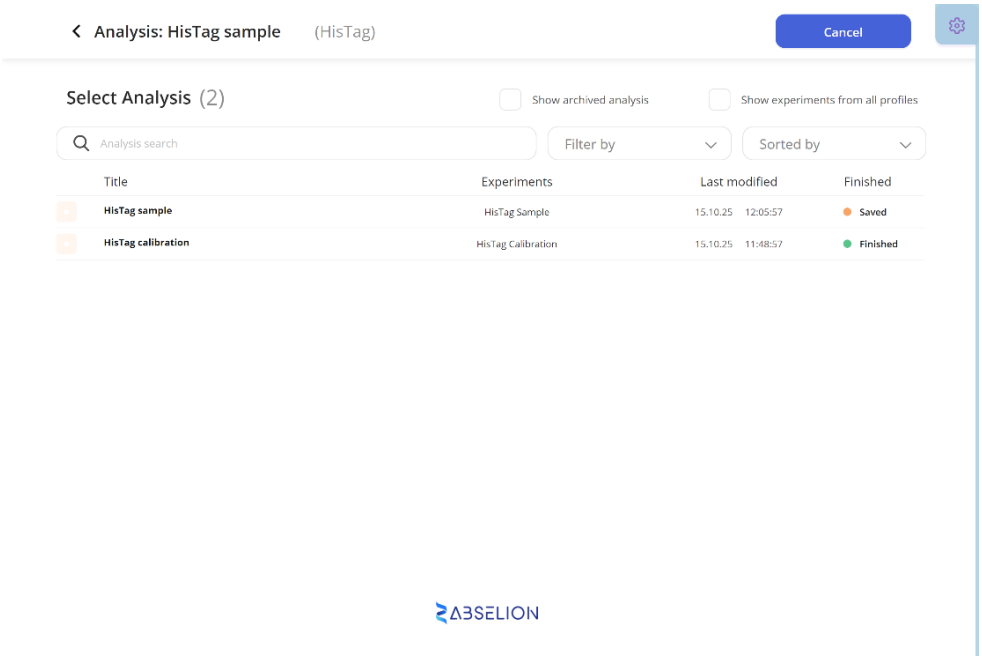


Figure 4.15 Choose a specific curve from the selected analysis

Figure 4.16 Tap Quantify to apply the curve to sample data

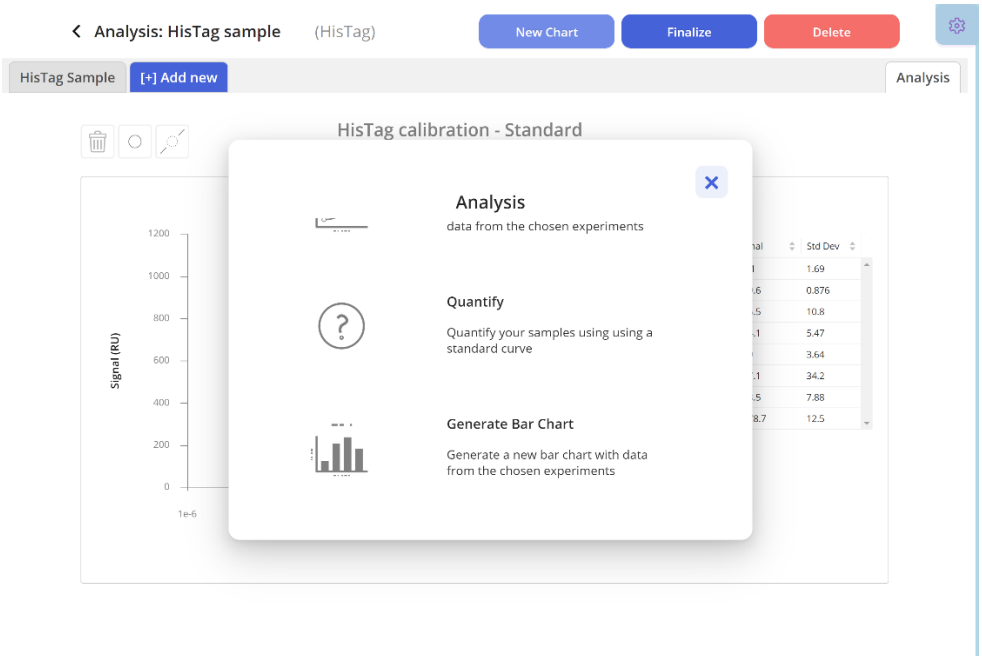


Figure 4.17 Samples plotted against the calibration curve

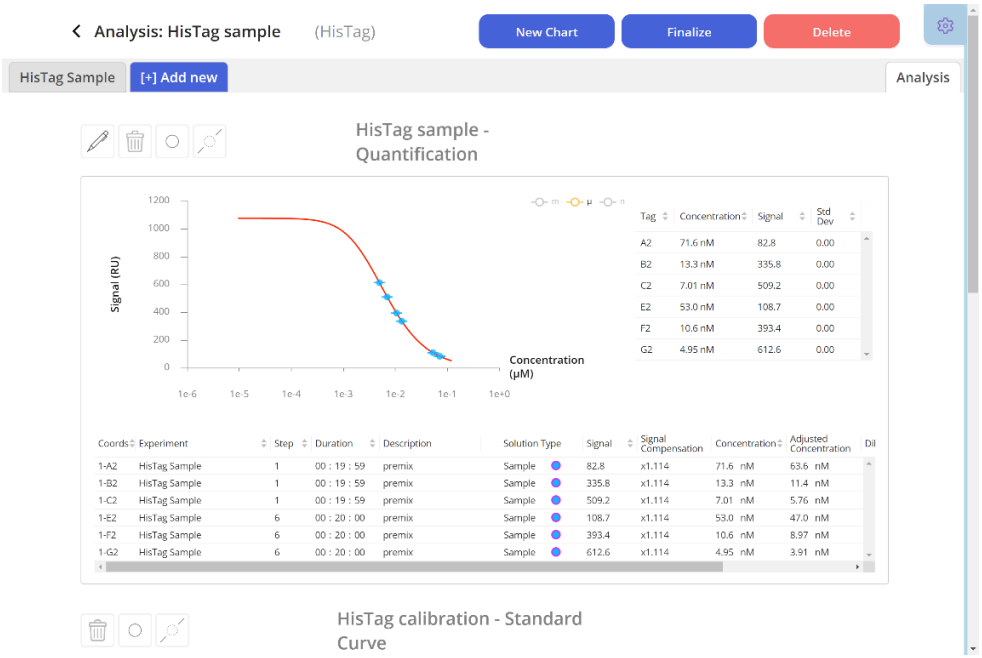


Figure 4.18 Summary of quantified sample results with compensation

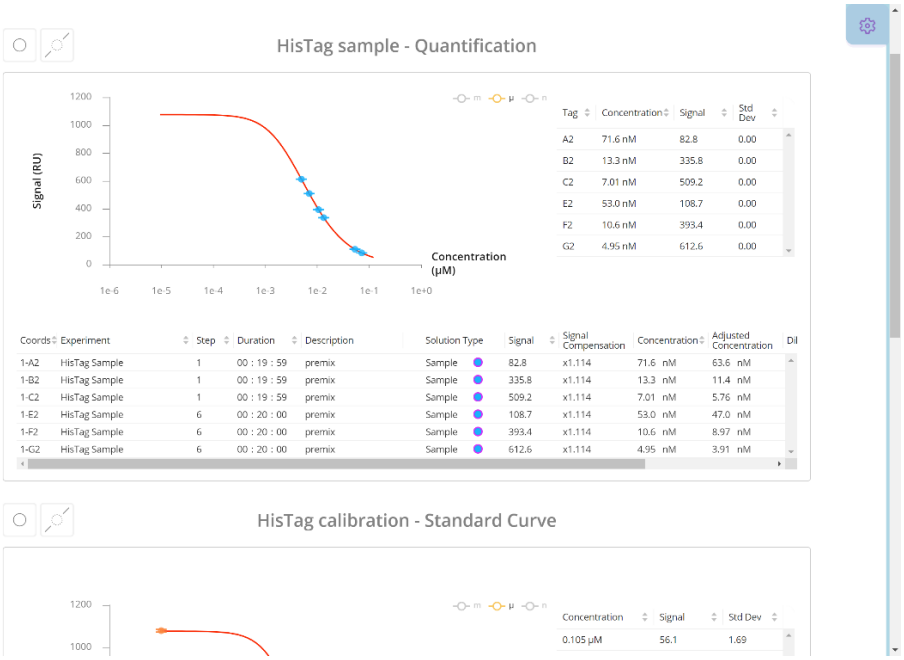
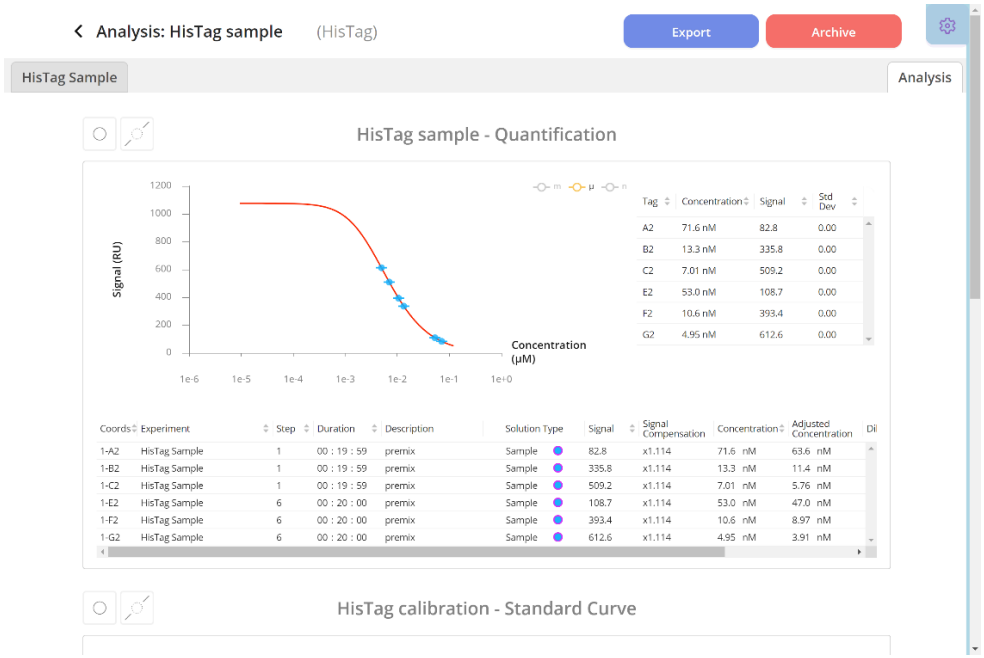


Figure 4.19 Export options for saving analysis data



5. Appendix

CUSTOMISING QUANTIFICATION UNITS

Amperia™ assay templates support calibration curves using either **molar units** (e.g., µM) or **mass concentration units** (e.g., µg/mL).

By default, **His-tagged protein assays** use molar units, while **antibody assays** use mass concentration units.

To change the x-axis unit, duplicate the desired assay template and open the **Settings** section under **Sequence**. Select your preferred unit from the **Default Units** dropdown, then save the template. The modified template will appear as a new option for future assays without altering the original.

STORAGE AND STABILITY

Detection Reagent | His Tag Quantification (A1-8036)

- Shipped at ambient temperature. Upon receipt, store at −20 °C. The lyophilised product is stable for 12 months at −20 °C.
- Once reconstituted (Section 2.1.2), the reagent is stable for up to 2 weeks at 4 °C.
- To extend storage:
  Reconstitute with 50 µL sterile deionised water to 200 µg/mL and allow to solubilise for 30–60 minutes at room temperature with gentle mixing (avoid vortexing). Aliquot and store at −80 °C (stable up to 3 months). Thaw and dilute 1:210 in Detection Dilution Buffer before use; store at 4 °C and use within 2 weeks.

All other components

- Stored at 2–8 °C.
- Do not freeze any reagents other than A1-8036.
- Sensors should remain sealed in their original foil pouch until use.

Kit is stable until the expiration date indicated on the label.

REAGENT COMPATIBILITY

Reagent	Maximum concentration (after dilution)
SDS	0.05% (w/v)
DTT	50 µM
Urea	500 mM
EDTA	2 mM
Imidazole	2 mM
Triton X-100	1% (v/v)
TCEP	200 µM

Components present in sample matrices may interfere with assay performance. The values above represent the maximum tested concentrations after sample dilution.

Where multiple interferents are present, compatibility should be validated by the user.

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**